# TRANSACTIONS

OF THE

# MASSACHUSETTS HORTICULTURAL SOCIETY

FOR THE YEAR 1904

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PART I

PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND FOUR

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# Massachusetts Horticultural Society

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# THE INAUGURAL MEETING AND PRESIDENT'S ADDRESS, JANUARY 2, 1904.

# TRANSACTIONS

OF THE

# Massachusetts Horticultural Society.

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## INAUGURAL MEETING.

The first Inaugural Meeting under the By-laws in effect January 1, 1904. was held at Horticultural Hall, Boston, on Saturday, January 2, 1904, at twelve o'clock, noon.

The retiring President, O. B. Hadwen, presided and introduced the President-elect, Henry P. Walcott, M. D., with the following remarks:

*Ladies and Gentlemen, Members of this Society:*

We meet at the commencement of the new year to organize with new officers under the new By-laws for the year ensuing, which it is hoped will insure for us an increased usefulness and prosperity.

I now take leave of an office that I have held for the past three years, and all my relations with you during this time have been pleasant and harmonious from the beginning to the end. I thank you most heartily for the friendliness and forbearance you have manifested through my official term. I congratulate you even more heartily upon your choice of my successor. This choice is in itself a promise of the continued progress of the Society in horticulture and an assurance that it will maintain its advanced position among the horticultural societies of the world.

Mr. President, I welcome you to your office, and, ladies and gentlemen of the Society, permit me to present to you Dr. Walcott, your President.

## Address of President Walcott.

*Ladies and Gentlemen:*

It is a happy augury for the Society that on so inclement a day so many of its members are present at this meeting.

In the early part of the year 1829 a public meeting was held in this city by a number of citizens of Boston and the surrounding towns who believed that an association should be formed for the purpose of advancing the science and practice of horticulture. It was at this time decided to organize a society. On the 17th of March, 1829, the Massachusetts Horticultural Society was fully organized, and on the 28th of June following, the act of incorporation by the Legislature was accepted by the Society. At the end of seventy-five years it is for us to demonstrate that the hopes of the fathers have not ended in disappointment and to show to what extent their anticipations have been realized.

The Society was incorporated for the purpose of encouraging and improving the science and practice of horticulture, and for promoting the amelioration of the various species of trees, fruits, plants, and vegetables, and the introduction of new species and varieties.

Two years later an act of the Legislature authorized the Society to undertake the care of a garden and cemetery, and thus the cemetery of Mount Auburn came into existence.

The attempt to combine under the same administration an ornamental garden and a burial place for the dead was attended by many difficulties, and it was soon found advisable to promote the establishment of a separate organization to take over the care of the cemetery. This was done, but fortunately for the interests of horticulture, the separation of interests was not complete, and this Society, in all the years since that act, has been in the receipt of large sums of money earned through the wise administration of the trustees of Mount Auburn and paid to this Society

in recognition of our original property rights. It is a tribute to the founders of this Society that Dr. Jacob Bigelow, one of the wisest and greatest of all the citizens of Boston, was willing to place in the hands of this Society the execution of the plans which he had developed for a rural cemetery.

The garden which the Society had hoped to develop in the grounds of Mount Auburn has flourished under the fostering care of the trustees of Mount Auburn and has been the inspiration and the model for all the beautiful resting places of the dead throughout our land. The early attempt to establish and maintain an experimental garden was abandoned after a few years' trial, though the chairman was no less a personage than Mr. Justice Story, and was never resumed, nor, indeed, is it likely to be again undertaken on account of the present system of well-endowed municipal, state, and national experimental stations for the development of agriculture and horticulture.

During the period subsequent to the establishment of this Society the Botanic Garden in Cambridge has been largely developed in ways advantageous to horticulture, and some may remember that it was proposed in the early days to establish a school for the education of gardeners. Benjamin Bussey, an early member, left by his will funds for the purpose of establishing the Bussey Institution for providing systematic instruction in agriculture, useful and ornamental gardening, land surveying, and in chemistry and natural history as applied to agriculture, horticulture, and forestry, and such instruction is now given upon the Bussey home estate in West Roxbury. By a fortunate arrangement a portion of his estate not essential to the uses of the school has become the Arnold Arboretum, which owes its establishment to the fund given to Harvard College under the provisions of the will of James Arnold, of New Bedford, also a member of this Society, and has been built up by the energy, skill, persuasion, and scientific capacity of our vigorous colleague into one of the great collections of the world of all that is interesting among the trees and shrubs of our northern zone.

Marshall P. Wilder, also, for more than fifty-six years, was an active, influential, honored and well-beloved member of this Society, and was more helpful, probably, than any other man in

procuring the establishment of the State Agricultural College at Amherst.

Our Society may well claim, then, that the purposes of the founders have not been thrown aside, and that institutions for instruction in horticulture have been created through the efforts of our own members which equal the foundations laid by kings and states.

During the past two years the Society has devoted much time and wasted, perhaps, some of its energies upon the subject of a revision of its by-laws. Various committees have considered them with varying results, and the Society itself has not at all times been able to arrive at a definite conclusion. In the past year we did, however, come to an agreement, and did adopt an amended code of by-laws which appeared to be satisfactory to all.

This new code approaches very nearly to that adopted by the founders of the Society and will, I trust, answer the only purpose which we all have at heart, the increased usefulness of the Society to the community about us, through the better application of its great resources to the science and art of horticulture; resources, let us always remember, that have in large measure been handed down to us by our predecessors, and which we in our turn must administer as a trust for the benefit of those who come after us.

The form of government which has been adopted, without division, has important and obvious advantages. It will offer at the annual elections a number of candidates for the important offices sufficiently limited in number as to enable the members to exercise a just discrimination in their choice, but not so limited that the Society cannot in a reasonable period effect any changes that may be desired in the organization of the governing body or in the committees appointed by that board.

It will have been unfortunate in the highest degree, however, if this change leads to any lack of interest on the part of the members at large in the intimate affairs of the Society. This unfortunate result cannot happen if all the provisions of the new form of government are called into operation. You have elected a board of trustees upon which every interest of the Society is fairly and ably represented. Any five members of that body can

at any time procure a meeting of the Society; fifteen members acting together may cause a meeting to be held; and, lastly, the president, upon his own motion, may request the Society to come together. It is not conceivable that all these means for bringing together our members should fail, and they will not fail whenever the exigencies of the Society require its prompt action. The active interest and support of the members will be freely given, I doubt not, to any administration which economically and wisely uses our great resources for the promotion of all those interests which it is the duty of this Society to foster.

An impression seems to have been created in some quarters that it has been and is the wish of a portion of the Society to curtail the exhibitions either in number or in extent. The criticisms which, at times, have been made upon the character of horticultural exhibitions in general, and of a few which may have been seen in these halls, do not have, as I understand it, this intention. It should be our policy to so arrange matters that any meritorious product of the garden may at any time be shown in our building. Some convenient room in this hall should be always open, under proper supervision, for the exhibition of any plant, flower, fruit, or vegetable which possesses new or superior qualities.

Without especial reference to the great exhibitions of the year which are in no need of commendation, for the public interest in them seems to be assured, I desire to call attention to the exhibitions which have been made for some years under the direction of the Committees upon School Gardens and upon Native Plants; they already attract the attention of many and deserve it from all. The keen interest of the young in plants and flowers, by whatever proper means created, can be turned to good use in a system of education, and will be to them through life a source of reasonable enjoyment and may be converted into a profitable occupation or into a scientific study.

There will always exist differences of opinion, even among the best informed, as to the qualities in plants and flowers which should be adjudged worthy of the premiums of excellence, and the qualities which attract the attention of the general public at our exhibitions are not always those that most commend themselves to

the persons of refined taste. The element of size in flowers has had something of the same power to attract the gaze of the multitude that was possessed by the giant pumpkin at the country fairs of a generation or more since, and, in many instances, the real merits of the two objects are about equal.

An entirely false value has been assigned to the overwrought and oversought size of the flowers at some of the shows, and by that false standard better qualities have been excluded which are more difficult to obtain, are more worthy of praise and, in the end, are more satisfactory to the person of good taste. Do not understand me to decry size when accompanied by a full share of the other excellencies that should belong to the plant, flower, fruit, or vegetable under consideration.

It is essential that the awards made in the name of the Society should be most carefully considered by the various committees charged with this duty. They have not simply to satisfy a number of contestants with the honesty of the award, for that question is fortunately not asked here, they have to satisfy a critical public that no unworthy object has been commended, no matter how much time and money may have been expended on its preparation. They have, beyond all, the task of educating the community up to the appreciation of the really good and, therefore, permanent qualities of excellence in the objects exhibited.

Your committee upon exhibitions has adopted a rule which will commend itself, I am sure, to the good sense of the Society as a requisite for the proper conduct of the business of the prize committee. I refer to the rule which excludes spectators from the exhibition halls during the time when the judges are making their examinations of the objects exhibited.

A number of years ago, more than I am now quite willing to remember, I called the attention of the Society to the practice of some other horticultural societies with reference to their prize committees. I alluded to the custom of obtaining the services of experts in the particular classes of objects exhibited, and I still believe that it would be well to give to the various committees, within the limits of a moderate appropriation of money, authority to call to their assistance acknowledged experts from outside the

Society and beyond the state whenever it is thought advisable to do so.

In connection with the publications of the Society, the meetings for the lectures and discussions of horticultural topics have been a valuable means for interesting the community in our special work. The most influential of the evening newspapers of the city has opened its columns to very full reports of these meetings and has in all ways furthered the legitimate purposes of the Society. It sensibly increased the value of that aid when we recognized in it the personal interest of an old and much valued fellow-member whose long and honorable career of valued services in this community has just ended with the year that is past.

I gladly take advantage of this occasion to publicly invite all who have any interests whatever in horticulture to visit our halls, to attend our lectures, and to make such use of our collections as may be consistent with the rules necessary for their protection.

The Society has been established long enough in its present quarters to have discovered that there are some changes to be made before we shall have a building completely adapted to our various requirements. The halls must serve us not only for our meetings and the stated exhibitions, but must also possess conveniences and attractions sufficient to bring here a fair share of the various gatherings which are always being held in a city of this size, which do not interfere with the legitimate uses of the hall, while they will help to secure for us the funds necessary for an extension of our usefulness. It is evident, I think, that some of these improvements can be made with a comparatively moderate expenditure of money.

The Society early began the formation of a library and for a number of years the purchases of books were made from the funds obtained by annual assessments upon the members, aided by occasional contributions of money or of books from the same source. In 1869 the Stickney Fund, established by Josiah Stickney, a former president of the Society, became available for the purchase of books. From that time on the growth of the library has been rapid, and it is now, with its ten thousand volumes, the best horticultural library in this country and one of the best in the world. No portion of our property contained in

this building is of so much importance as this collection of books and journals, and, notwithstanding the attractive and spacious rooms in which they are deposited, there is still, it seems to me, much to be done before we can feel that a proper protection has been given to our library. I commend to the appropriate committee a prompt consideration of the state of our books and shall venture in your name to assure our committee that much as we desire to save money in the administration of our affairs nothing can be reckoned as a saving which involves a permanent injury to this most valuable possession of the Society.

From the report of the treasurer you will be able to ascertain the details of our financial condition. We have not yet been able to secure as large a rent for the use of our halls as seems to be possible, and it will be the endeavor of the trustees during the coming year to discover appropriate means for increasing the receipts from this source, and, until such means are discovered, it is evident that we must practise a careful economy.

Assuming that we receive the usual payment from the trustees of Mount Auburn, the Society appears to have a larger balance to its credit than at the end of the year 1902.

There seems to me no single object of so much importance to the Society for the procuring of a general interest in our work as an increase in our membership by the addition of all those persons in the community who have or who can be tempted to acquire a taste for the things for which this Society exists. The exhibitions, the unrivaled collection of books and journals, the papers upon horticultural topics and the discussion of them held here at stated intervals, can all be had at a price which is often wasted upon a day of profitless amusement.

It is not always easy to determine the exact amount of influence exercised by associations such as this upon the objects for which they were formed. It seems to me certain, however, that no one can read the volume which contains the history of this Society and become familiar with that long list of distinguished names without finding evidences there of a leadership to which must be assigned the credit for a large share of the horticultural work of this city and of Eastern Massachusetts. It is my intention to give to the word horticulture its most extended definition,

a definition as broad as that given more than fifty years ago by one of the great orators borne upon our rolls, statesman, scholar, and leading citizen. Mr. Winthrop declared, in an address before this Society in 1848, that "horticulture in its most comprehensive sense is emphatically the fine art of common life. It is eminently a republican fine art. It distributes its productions with an equal hand to the rich and to the poor."

The highest expression of this art is found in landscape gardening. The garden and cemetery at Mount Auburn were to have been the laboratory of the Society for the working out of the various problems presented by this art. This dream of the founders, if it was a dream, came to an end when the connection between the two bodies was sundered.

Prizes offered by the Society for the best application of taste and skill in laying out of grounds have been the only substitute which it has been possible for us to use since that time. The private grounds of some of our members have been the examples of skill and taste which we have held up for imitation. I will take but one, the estate of our greatest benefactor, where on the grounds at Wellesley he had transformed a barren New England hillside into a garden which might have been taken bodily from the land of gardens; and in other portions of his domain had used that highest art that ever conceals its source and has left a scene as simple, as dignified, and as true as was his own noble character.

Plants and flowers are apt to come first in mind when the city-bred man thinks of horticulture; but nature, and man when nearest to nature, are most careful of the fruits; and on this side we have not neglected the obligations imposed upon us. Generous prizes have always been offered for the improvement of the fruits and vegetables sold in our markets. The skill of the cultivators of this vicinity, and I cannot go wrong in asserting that the best of them are among our members, is shown by the success with which they have even invaded the markets of the great commercial center of the country.

We are justly proud of our past; let us see to it that our successors may have reason to be also proud of the doings of the men of this day.

Members and friends, you have most graciously called me back to this dignified office for another and my last term of service here.

I can have but one purpose in view, and that is to obtain with your assistance the best results possible for the activities of this honored association, and my hope is that you may not in the end discover that my efforts have been in vain.

# HORTICULTURAL PAPERS AND DISCUSSIONS.

# THE GYPSY MOTH AND ITS RAVAGES.

BY JOHN K. M. L. FARQUHAR, BOSTON, MASS.

Read before the Society, January 16, 1904, with Stereopticon Illustrations.

The devastation wrought by the gypsy moth last summer in Medford, Malden, and surrounding towns, should be sufficient warning of the danger which threatens the country from the spread of this insect.

Since its introduction, over thirty years ago, there has been no diminution of its destructive energy, as many persons experienced with insect pests had hoped for, nor have the enemies or parasites of this moth been numerous enough to perceptibly check its progress.

Eggs of the gypsy moth were imported in 1868 or 1869 by a French entomologist named Leopold Trouvelot, then living in Medford, for the purpose of experiment in silk raising. Trouvelot carelessly allowed several of the insects to escape. We are told that he tried to exterminate them, being fully aware of their dangerous character, but finding himself unable to do so he gave public warning of the impending danger.

Within ten years the progeny of these escaped insects had become a nuisance to the inhabitants of the district. Fruit, shade and forest trees were stripped of their leaves by the larvae, which defoliated every tree, deciduous and evergreen, in their course except ash and buttonwood, which were seldom attacked. Flowering shrubs, with the exception of lilacs, suffered in the same manner, also raspberry, blackberry, and strawberry plants; of the last both leaves and fruit were eaten. In the vegetable garden the caterpillars ate tomatoes, cucumbers, peas, beans, beet, corn, rhubarb, potatoes, spinach, dandelion, kale, and other vegetables. They destroyed several thousand young carnation plants of a Medford florist, as well as roses, geraniums, and other bedding plants; even the grass of the lawns did not escape. Certainly the worst characteristic of the gypsy moth is its omnivorous appetite.

The State Board of Agriculture has stated that "the gypsy moth is probably the most fearful insect pest in America." The devastation it has wrought in Medford seems to justify the statement. There, during last summer, we saw large areas of forest as leafless as in December. Pine, spruce, hemlock, and cedar trees were denuded of foliage and are now dead. Many oak trees which put forth a second growth of leaves after the first had been destroyed had that, too, eaten by late caterpillars, and the trees are dead, while of apple trees not only the leaves, but often the half-grown fruit was attacked.

It is unnecessary to speak further of the devastation caused by the gypsy moth or of the nuisance of the offensive caterpillars in the streets and houses. The question is how to control or exterminate the pest.

We believe that no insect has ever been exterminated. The army worm, chinch bug, potato bug, grasshopper, San José scale, and rose bug are insects which we have learned to control.

Last week Congress appropriated $250,000 for the suppression of the cotton-boll weevil; a like sum was asked for by our representative, Mr. Gillett, with which to suppress the gypsy moth, and refused. Just let our gypsy moth gain a foothold in the cotton belt and the cotton-boll weevil, if not the planters, will die of starvation. The gypsy moth is ravenously fond of cotton, eating leaves, soft stems and half-grown bolls with avidity.

The State of Massachusetts is now in much the same position that Trouvelot was thirty years ago. He had introduced the moth, allowed it to escape and menace his neighbors. The state has permitted it to spread until it threatens not only adjoining states but the entire country. It is clearly our duty to give public warning as did Trouvelot, while we put forth every effort to check the spread of the moth.

The infested region includes many railroad freight yards, where freight cars are liable to harbor caterpillars or eggs and transport them great distances. The numerous electric car lines are known to carry the moth into new territory. Three days ago a gentleman told me that while riding through Middlesex Fells last summer, he observed in his automobile a few of the caterpillars which had dropped from the overhanging trees. He had intended to

destroy them on reaching home, but forgot to do so, and he now finds numerous nests in his barn.

Perhaps no individual has suffered more from the ravages of the gypsy moth than General Sam'l C. Lawrence, of Medford, and certainly no one has done more to combat it. During the past year he kept an average force of thirty men steadily at work from the middle of March until the recent snow storm stopped operations; nor has he been discouraged by the fact that when his own trees were cleaned they were constantly reinfested with moths from adjacent land.

One of the bills before the Legislature relating to the gypsy moth places the burden of suppressing it partly on the owner of the premises infested, partly on the city or town, and partly on the state. The passage of this bill would greatly promote the success of such work as General Lawrence has done.

That the people are sufficiently aroused to demand action of the Legislature is conceded. The danger is that such action may be inadequate. If extermination or even control of the moth is to be attained, an appropriation of at least a million dollars, covering a period of four or five years, should be made at once. One fourth of this sum should be available the first year. The state has already spent nearly a million dollars in its endeavor to stamp out the moth; the appropriations were insufficient to do the work successfully and the money has been spent in vain. The State Board of Agriculture is perhaps the best agency to take charge of the work.

It seems to me that in addition to the regular work of destroying eggs, killing caterpillars under burlap, spraying trees, and burning brush-wood, that it would be desirable to send some competent entomologist, thoroughly familiar with the situation, to collect in Europe the parasites which have checked the ravages of the gypsy moth there. These parasites should be brought here, their usefulness ascertained by experiment, and those most valuable propagated and distributed throughout the area infested. Two or three thousand dollars placed in the hands of such a man as Mr. A. H. Kirkland for this purpose would undoubtedly be productive of good results.

Fourteen years ago the Massachusetts Horticultural Society

raised its voice in favor of energetic action against the gypsy moth. There is more cause for alarm today than ever before; this fearful pest will soon be beyond control and the entire state will be visited with such desolation as we saw in Medford last summer.

## Discussion.

Hon. J. Lewis Ellsworth said that he had not expected to be the first speaker on the subject of the day's discussion, but had come, rather, to listen to others. He thought the lecturer had stated the matter in very full detail. In preparing his annual report he had visited Medford, Malden, and the adjoining towns, and those who had not seen the ravages in that region could little imagine the calamity that has befallen the country in this pest. The caterpillars even invaded the houses and, in some instances, the occupants were obliged to move out, so intolerable was the nuisance.

While the spread in the infested territory is naturally very slow, the insects are being gradually transported by teams and bicycles to more distant places. Very few colonies have been found south of Boston; a small one is reported in Providence, R. I., and also one in East Bridgewater, Mass., on apple trees; these are all that have been found as yet in that quarter, showing the slow, natural spread of the bug.

The extermination or control of this destructive pest is of vital importance to the forestry interests of Massachusetts. The State Board of Agriculture will, undoubtedly, in the future take more interest in the forestry conditions of the state, but what is the use of reforesting lands if you are going to allow the gypsy moth to destroy it? That is the question of today, Mr. Ellsworth stated, and he was glad that it had been brought up.

James H. Bowditch said that the gypsy and brown-tail moths came over from Europe, leaving behind their natural enemies, so that they have steadily increased, notwithstanding much money and labor expended by the state, towns, and individuals in destroying them by hand. It can never be successfully accomplished in this way, except temporarily.

The only wise and practical method open for us to pursue is to try and duplicate European conditions by the introduction of parasites. Even in Europe there are times when these two moths are troublesome, but they never get beyond the danger limit because natural enemies quickly step in and reduce them to harmless numbers. Then as the moths decrease the parasites fall off until such time as they are again needed.

Mr. Albert Koebele of Alameda, California, probably the best practical parasitical entomologist in the country, who has done most valuable similar work there and elsewhere, makes a definite offer for the sum of $60,000 ($15,000 a year for four successive years) to do this whole work for us. His agents would import the needed parasites, establish them here in the heart of the infested district, and distribute them elsewhere as needed. Under such reasonable and reassuring conditions he ought to be sent for immediately and given full power to act in the premises, because nothing short of such prompt and right action will satisfy the general public that its lawmakers are properly grasping the difficulties of the existing situation.

Theodore F. Borst spoke of Mr. Koebele's qualifications for this work. Mr. Koebele's most important work has been on insects in California, to the great satisfaction of the people of that state. He next went to Oregon, where he was very successful in exterminating insects on fruit. He is a man of world-wide reputation among entomologists and thoroughly reliable.

J. Woodward Manning observed that the brown-tail moth is increasing rather than diminishing. The natural enemies of the brown-tail are having some effect, but such does not appear to be the case with the gypsy moth. There was much to be said in favor of fighting it with its natural enemies, which seems to be the proper method to follow.

Benjamin P. Ware said that the time had gone by when it was necessary to warn people of the danger and menace of the gypsy moth. The work of extermination by the state was dropped at a very unfortunate time and it has since spread a good deal. The moths had appeared in Swampscott and Marblehead, but after the expenditure of several thousand dollars by those towns they have been got under control. It is possible to

exterminate them; it has been done in Marblehead. It is an absolute necessity that a large appropriation be made to continue this work of extermination. It is a danger that must be met, and the quicker the better; the longer delayed the harder it will be. He was glad this meeting was called to start public sentiment on this subject. Congress will heed the voice of the people.

Varnum Frost thought the account of the gypsy moths' depredations was largely overdrawn. He had never seen one in a cultivated field, but admitted that he did not observe any reduction of the pest in Belmont.

E. W. Wood, a member of the State Board of Agriculture, stated that the committee of the Board had consulted everybody in the country who had any knowledge of the moth. As yet they had had no encouragement from parasitic enemies. It had been the policy of those having the matter in charge to work from the outside of the infested district towards the center, and that was the reason why the residents of the region saw so little reduction of the pest.

Hon. Aaron Low said that the insects were likely to be disseminated by market wagons, for they would not spread naturally very fast. It is one of the most menacing things we have to contend with and it is of the highest importance that active, energetic measures be taken to exterminate them.

J. Woodward Manning suggested that a committee from those present be appointed to draw up a resolution favoring the suppression of the gypsy moth by its natural enemies. Such a committee was appointed by the chairman, and the following motion was prepared and unanimously adopted:

Voted, that this meeting approves the action of the Massachusetts Forestry Association in its effort to introduce natural parasites to destroy the gypsy and brown-tail moths and in other ways to check their ravages.

# TREES, FLOWERS, AND FRUITS OF THE EAST.

BY H. H. GOODELL, PRESIDENT AGRICULTURAL COLLEGE,
AMHERST, MASS.

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Read before the Society, January 23, 1904.

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As the traveler approaches the golden city of the East, that city perched on its seven hills and spanning two continents, two species of trees come prominently into view; the one the symbol of life and perpetuity, the other of death and extinction; the one planted when a male child is born, the other marking the last resting place of some beloved one; the one, a giant in size, shading with its outstretched limbs and broad leaves a great area of ground, the other an evergreen, close and compact, tapering up to a point; the one, the *Platanus orientalis*, the plane or sycamore, and the other the *Cupressus horizontalis* or the *sempervirens* found in every Turkish cemetery. A greater contrast between two trees cannot be found. The one standing alone or in small groups, the other massed in such numbers as to constitute a forest, miles in extent. Of the former, two specimens arouse the attention of the curious sight-seer. One stands in the court-yard of the Seraglio at Constantinople, more than fifty feet in circumference and reputed to have been planted by Mahomet II, in 1452, to commemorate the birth of his son. In one of the great ravines dividing the hills of the Bosphorus on the European side, in the valley of Buyukdéré, about fifteen miles from the city, stands the other, celebrated alike for its age, its size, and the historic memories that cluster about its weather-beaten trunk. For two thousand years, according to the calculations of the botanist de Candolle, has it looked down on the generations of men that have lived and died and passed away. It is about forty-seven yards in circumference at its base, while its branches afford shade to a circular area of one hundred and forty yards. Its huge stem, called the seven brothers, is divided into a number of branches, seven of which issue from below the present surface of

the soil, while seven do not divide till they rise a few feet above. The interior of one of these divisions of the main trunk has been hollowed out by fire and fashioned into a coffee-shop in which fourteen or fifteen persons can be easily accommodated. "It is," says an enthusiastic Frenchman, "a temple of verdure whose leafy dome rests amid the clouds." And here nine hundred years ago, in this great temple of nature, while the choirs of birds sang matin masses in response, tradition tells us that Godfrey de Bouillon gathered together his crusading host and offered up a solemn thanksgiving to the God that had brought them thus far safe upon their way. And we may well believe that as the warlike bishop, Adelhemar of Puy, elevated the host and blessed the kneeling multitude, the cry once more arose and swept from rank to rank, till with one loud shout the whole vast army, six hundred thousand strong, joined in "Dieu le volt! God wills it! God wills it!"

The cypress is only found in Turkish cemeteries, being planted perhaps for two reasons: because its aromatic resin helps overcome the effluvia arising from the shallow graves, and because its evergreen foliage, dark and sombre though it is, is the emblem of immortality. The Greeks and Armenians, instead of the cypress use the sycamore or, quite as frequently, the graceful *Pistacia Terebinthus* or turpentine. These grow to considerable size, one in the garden of the British Embassy measuring twelve feet in circumference, being over a hundred feet high and shading a circle of one hundred and eight yards. These trees, notwithstanding their size, are sometimes parasitic, and but a few years ago, just across the Bosphorus, on the Asiatic side, could be seen an enormous one growing out of a still larger cypress. There is another peculiarity of the tree; a species of insect, probably an aphis, forms a nest in the extremity of the leaves, by puncturing its substance, which then becomes fungous and swells into fleshy follicles of a bright scarlet hue, full of turpentine and having a strong resinous odor and clammy feel. They are so abundant sometimes as to give the tree the appearance of bearing rich flowers or fruit.

Another variety of this tree, the *Pistacia Lentiscus*, yields that pure, transparent gum, the mastic, used by the natives for

chewing purposes, to preserve the teeth and sweeten the breath. It is also used by the Greeks to improve their brandy made from grape-skins. It is procured by making incisions in the bark of the tree, the resin exuding in clear, tear-shaped drops. So highly was the product of the island of Scio esteemed, that the inhabitants were compelled to pay an annual tribute of one thousand pounds for use in the Sultan's Seraglio.

The olive is grown over a very wide area, especially in Asiatic Turkey and the Mediterranean islands. An olive orchard in the flowering time is one of the most beautiful sights in the world; the gnarled and twisted trunks, hoar with age; the short, oblate, slightly curled, silvery leaves; the branches fairly bending beneath the weight of the snowy petals, and the ground beneath and around white as with flakes of snow. Job says, referring to this peculiarity of its shedding its blossoms, "He shall cast off his flowers as the olive." Next to the cereals it is by far the most important agricultural product of Turkey. Its berry, pickled, forms the chief article of food; the oil, produced from its pericarp, seasons most of the dishes, and keeps alive the light that cheers the winter's gloom; its wood, close-grained and hard, takes on a beautiful polish and is very highly prized; while its bark and leaves, possessing certain febrifuge principles, are much sought after by the leeches of the country. The tree is slow in reaching maturity, but after the fifteenth or sixteenth year it bears on indefinitely and seems never to lose its vitality. There are trees in the garden of Gethsemane estimated to be over a thousand years old, still in full sap and vigor. It is of all fruit trees the hardiest, for scarcely any amount of mutilation, any severity of frost, or even sharp scorching by fire, suffices to destroy its life. "So long as there is a fragment remaining, though externally the tree looks as dry as a post, yet does it continue to bear its load of oily berries, and for twenty generations the owner gathers fruit from the faithful old patriarch. This tree also requires but little labor or care of any kind, and if long neglected, will revive again when the ground is dug or ploughed, and yield as before. Vineyards forsaken die out almost immediately, and mulberry orchards neglected run rapidly to ruin; but not so the olive. Though they may not have been attended to

for half a century, yet they continue to be a source of income to their owners."

These peculiarities Virgil observed and carefully noted in his Georgics nearly two thousand years ago: —

"But on the other hand, no culture needs
The olive tree at all; not it the knife
Forthcurved expects, nor clinging hoe, when once
It in the field is fixed, and bears the breeze.
To it the earth, its bosom loosened up
By furrows of the ploughshare's hook-like tooth,
Sufficient moisture gives, and gives the plough
Returns of weighty fruitage rich and ripe."

*Georgic, II, 420.*

"Why! cleave an olive tree's dry stump, and, strange
And wondrous strange to tell, an olive root
Will from the dry wood come!"

Frequently a whole village will unite and plant a grove in common. Then not even the berries that fall to the ground are allowed to be picked, till a proclamation is issued by the head man of the village or the governor of the province. A tree yields from ten to fifteen gallons of oil, and the profits are about one hundred dollars to the acre. It is claimed that the tree bears only every other year; but this is due probably to the vicious manner of gathering the fruit, beating the branches with long poles to shake off the berries, and, in so doing, bruising and destroying the tender buds that are setting for the next year's crop.[1]

The husks with which the prodigal son would fain have filled his belly, and which Scripture says the swine did eat, were not after all such very poor fare. Many a repentant sinner might go farther and fare worse. They are the fleshy pods of the locust tree (*Ceratonia Siliqua*), a leathery brown when fit to eat, some six to eight inches in length, containing a spongy, mealy pulp, of a sweet and pleasant taste in its ripened state, and in which are imbedded a number of shining, brown seeds, very hard, and somewhat resembling a split pea. These seeds are of no value

[1] Thomson, The Land and the Book.

whatsoever, on account of their bitter flavor; but the sweet pulp of the pod, when dry, is extensively used as an article of food, particularly among the laboring classes. In Syria it is ground up into a coarse flour, and a species of molasses made, which is used in the preparation of different kinds of sweetmeats. As food for horses it is exported in large quantities to the south of Europe. Into this country and Great Britain it finds its way, under the name of locust beans or St. John's bread, receiving both names from the ancient tradition that they are the "locusts" which formed the food of John the Baptist in the wilderness. The tree is cultivated extensively in all the countries bordering the shores of the Mediterranean, both for its food-producing qualities, and its wood, which is hard and susceptible of a fine polish. In size and manner of growth it resembles an apple tree, but is more bushy and thickset. It yields a prolific harvest, and it is not unusual to see a tree bearing over half a ton of green pods.

One other tree deserves mention, not on account of its food-producing qualities, but for its importance in a commercial point of view. It is the shrub oak, the *Quercus Aegilops*, which, growing wild on the mountain slopes and rugged steeps, where nothing else will grow, gives employment to hundreds of men, women, and children, who, in the season, go out to gather the acorns. These are brought down in sacks to the nearest seaport, whence they are exported, thousands of tons annually, under the name of "valonia," to be used in the tanneries of Europe. They readily command eighty to ninety dollars a ton, and from the seaport towns of Smyrna and the islands adjacent, forty thousand tons have been sent to England alone in a single year.

The wild olive, *Elaeagnus angustifolia*, grows abundantly in low situations and humid soils. It has more the habit and appearance of a willow than an olive, though the under side of the leaf is hoary and sometimes quite silvery. The fruit is dry, mealy and saccharine, and retains for a long time its usual size and form. It is sold extensively in the markets.

The *Acacia Julibrissin*, though not a native, is found in every garden in and around Constantinople. The foliage, though not sensitive to the touch, is highly susceptible to the variations of

the atmosphere. On a bright day the dense pinnate foliage gives a thick shade, but if rain threatens, the leaflets close their under surfaces together and the tree seems denuded of leaves. The beautiful, large clusters of stamens of bright pink color and rich silky texture make it an especial favorite among the Turks who have given to it the poetic name of Gul Ibrisim or Silk Rose, and from this has arisen the specific botanical name of Julibrissin.

The *Smilax excelsa* runs riot in all the woods covering the hill on either side the Bosphorus. It climbs to the top of the highest trees and descending in streaming branches forms a lofty green wall by the roadside. In autumn, loaded with rich, red berries, it is wonderfully beautiful.

The cherry, a pale, amber-colored, transparent variety, grows wild in the woods of Asia Minor. The flavor is delicious. The peculiar fact about the trees is their great height, the lowest branches being thirty to forty feet from the ground and the whole tree measuring seventy to ninety feet.

Other fruits abounding are apricots, figs, walnuts, plums, medlars, chestnuts, and filberts. The pears and apples are not worth mentioning. The fig trees grow to very large size. The trunk of one standing in my father's garden was about the circumference of my body, and in its branches I used to sport in my boyhood's days. The apricot trees were likewise large, the size of our largest apple trees, the fruit more nearly the size of the peach and more juicy than those grown in this country.

Among the shrubs, one of the most beautiful is the redbud or Judas tree (*Cercis Siliquastrum*) which grows in profusion on every hillside. As you descend the Bosphorus in the early spring, the mountain slopes on either side from the water's edge to the very summit are ablaze with its bright, red blossoms, while interspersed are the beautiful flowers of the almond. The buds are gathered and used with other raw vegetables by the natives in salads to which they lend a charming color and flavor.

The *Rhamnus Paliurus* or buckthorn is the common hedge in Asia Minor and forms a most impenetrable hedge. It is covered with spines which stand in pairs, one being straight and pointed and very sharp, the other hooked so that once any portion of a person's dress is caught, the whole soon becomes engaged and

it is very difficult to tear oneself loose. Like the "wait-a-bit thorns" of Africa, once caught, there is no hurry in getting away. It is popularly believed to be the plant from which our Savior's crown of thorns was made. It differs very materially from the *R. Spina-Christi* in the membranous wing surrounding the seed vessels. In fact these seed vessels are its most marked characteristic, for when fully ripe, they hang in profuse clusters of a vivid light-green or yellow, giving the tree the appearance of being clothed with rich flowers.

The strawberry tree or Arbutus belongs to the heath family or *Ericaceae* to which belongs our common trailing arbutus. The species, I am inclined to think, is the *Unedo*, but I am not certain. At any rate it is the one mentioned by Virgil in his Third Eclogue: "Moisture is grateful to the sown corn; the arbute to weaned kids; the limber willow to the teeming cattle." It is a shrub eight to ten feet tall with fruit fleshy, five celled, many seeded, dotted with little projections having the resemblance of a strawberry. The leaves are smooth and shining, oblong-lanceolate, more or less serrated. The flowers are white, growing in clusters, each separate flower bearing a resemblance to a lily of the valley. The fruit of all the species seems to possess a narcotic influence and wine is made in Corsica from the *Arbutus Unedo*. The name strawberry tree in the United States has been applied to the *Euonymus americanus*, a very different plant of an entirely different order. I think it does not grow wild, at least, I only recall seeing it cultivated in gardens.

The *Vitex Agnus-castus* in company with the oleander is found on the banks of all the rivers in Asia Minor. The pink and lilac blossoms form a beautiful combination in color, while their fragrance fills the air. The *Agnus-castus* derived its name from being carried by the priestesses in the festivals held in honor of Ceres. To this day certain virtues are ascribed to it.

Of the numerous flowers growing wild on the hillsides of the Bosphorus, those coming most prominently to my remembrance are beautiful anemones, red, white, pink, and yellow; three kinds of thistles, pink, purple, and yellow; single hollyhocks of great diversity of color; forget-me-nots and English daisies; poppies flaunting their blood-red banners amid the pale lavender of the

flax fields; white snowdrops and bloodroots pushing up their delicate flowers, the sign and symbol of the coming spring; while Scotch heather, wild thyme, and lavender made the air redolent with their spicy fragrance. A species of *Erigeron* or fleabane, which is used (from its strong odor) to keep off noxious insects, lights up with a ruddy glow the parched and withered vegetation of the islands of the Marmora in the fall. The *Pancratium maritimum* abounds in all the sandy plains of Asia Minor. It propagates by seed as well as bulb. It is claimed to be the lily of which our Savior said, "And Solomon in all his glory was not arrayed like one of these." A gigantic *Arum* grows on the plains of Broosa, the flower reaching the height of four feet, its spathe edged with purple and the stem variegated like tortoise shell. In a little valley lying at the foot of Mt. Olympus is one of the most fragrant spots in the world. It is planted entirely with roses, of the centifolia, damascena, and moschata varieties. For here is manufactured that most costly of essences, the attar of rose. As it takes the petals of 100,000 roses to yield 180 grains of attar, you can readily understand how many thousands were planted in this garden. In mere sensuous pleasure, nothing can surpass this spot. You wander aimlessly about, lulled by the sweet notes of the nightingale, intoxicated by the fragrance arising from a myriad of flowers, the eye charmed by the wealth of color banked about you and only wishing that each sense might be multiplied in power fourfold, that you might in a fourfold manner drink in the pleasure of the hour. The valley is appropriately called Gul Hatistan or the valley of gratification.

You pass from this valley of peace and repose, where everything conspires to lull the senses into dreamy forgetfulness, into a place of wonderful commercial activity, into the great silk-manufacturing industry of the East. Broosa is one of the most beautiful and interesting cities of the Orient. It lies at the foot of the Mysian Mt. Olympus. The country around is volcanic in its origin and earthquakes are not infrequent. Within my own remembrance it has been almost totally destroyed. In the centre of the city rises a rocky eminence crowned with the remains of an ancient citadel. To supply it with water, a long sloping passage-way, descended by 150 to 200 steps, leads to the well or

spring found at the bottom. It is preëminently a city of baths. Fuel is not needed, for hot springs abound, and by their side are fountains of ice-cold water fed by the melting snows of Mt. Olympus. Fronting the city are miles of plain covered with mulberry trees, mostly of the alba variety, for the leaves of the nigra are not considered delicate enough to suit the delicate palate of the silkworm. It is a beautiful sight to see the tender care lavished upon these worms. They are tended by women who, twice or thrice a day, feed them with fresh leaves, brush out the droppings and remove the diseased or dead caterpillars.

These women take the most scrupulous care of their persons and clothing in order to have nothing offensive about them. It is said that in sudden cold they will even cherish the worms in their bosoms to prevent their being chilled. And this is not strange when you remember that the loss of their silkworms means the loss of their livelihood. The story of the introduction of this industry fifteen hundred years ago is an interesting one. Silk was at that time brought from China and was worth its weight in gold, pound for pound. Some Christian monks who had been for many years resident in China came to the court of the Emperor Justinian, claiming that the eggs of the silkworm might be imported safely. Commissioned by the emperor to undertake the enterprise, they departed on their long journey and returned after several years with the eggs concealed in a hollow cane. Meantime mulberry trees had been planted and soon the industry was started which has lasted until the present day.

The implements of husbandry are very simple and primitive. The ox yoke is made of two straight pieces, one above, the other below the neck, the top piece alone being hollowed. Two straight pins serve instead of the yoke to inclose the neck, a strong trunnel in the middle taking the place of staple and ring.

The plow is absurdly ridiculous. Take a pole about ten feet long, four or five inches in diameter at the butt, and by mortise and tenon unite this at a slightly acute angle to another piece of about equal size, sharpened and shod with iron to plow the earth, and variously provided with some sort of handle for the plowman's hand, and you have an oriental plow. It does not

turn a furrow; it simply scratches the earth to the depth of four or five inches, and then the ground must be cross-plowed in order to secure anything like an adequate preparation for the sowing. European plows, to which several pairs of buffaloes were attached, have been introduced at various times, but were soon given up on account of the difficulty of finding animals strong enough to draw them. The hope of success lies in the improvement of the breed, but there is something beyond this, for the best breeds introduced soon degenerate from lack of nourishment. The country must be better governed, property made more secure, before farmers will find it to their advantage to give their cattle more than the scanty grass they can pick up here and there on the parched hillsides. The improvement of implements will follow as a matter of course. The same thing is true of the ordinary horses; barley and straw alone and the treatment received through many generations have produced the small, wiry, enduring hack of Asia Minor, as far removed from the lithe form and airy grace of the Arab steed as light is from darkness.

The spade is triangular in shape, with a straight handle, longer than a man is tall. A few inches above the blade a piece of wood is mortised in upon which the foot is set to force the blade deep into the earth. The length of the handle enables the laborer to lay his whole weight upon the extremity and afterwards use it as a lever in order to raise a large quantity of soil, which he merely turns over. "Shallow ploughing, but deep spading seem then to be the two chief rules of Oriental agriculture."

The hoe has a broad blade, not flat, but slightly concave, the handle very short, compelling the laborer to crouch to his work. The sickle is about the same form as our own. The scythe, shorter, heavier, clumsier, the snath nearly straight with but one handle, the left hand grasping the snath itself. The blade has no curve worth mentioning. Fortunately for the back of the laborer, hay is in so little demand that the scythe is practically only used in the cradle, and that not by Turks, but almost exclusively by the Bulgarians. As you pass by the great wheat fields you will see men and women with their sickles slowly and laboriously reaping

the golden harvest. Ask them whether they could not do the work much more rapidly and easily with the cradle, and they will answer, "Doubtless." Ask them why they do not use it, and with a shrug of their shoulders they will reply, "Good Lord! it is not our custom." And *that* is the end of all controversy with an Oriental. To change the custom of his fathers is as impious an act as to defile the bones of his ancestors or curse his grandmother.

One is sometimes in despair of any progress in the Eastern world. The beginning must be made at the root. Educate the youth and they are as ready for improvement as any people. In some places on the rich banks of the Danube modern implements of harvesting have been introduced and the produce doubled, because the farmer is no longer afraid of sowing more than he can gather. The women do a great deal of work in the fields, and may be seen laboring side by side with the men. The position occupied by them may be fairly well illustrated by the following story: A gentleman riding one day in the country overtook a man who had laden his wife with a heavy bundle of sticks. He remonstrated with him, saying, "My good man, it is too bad that you should load your wife down in this way. What she is carrying is a mule's burden." "Yes, your excellency," the man replied, "what you say is true. It *is* a mule's burden. But then you see Providence has not supplied us with mules and it has supplied us with women." It is the same all through the East. Sir Thomas Munro, in his "Travels to the City of the Caliphs," relates as a reason why an Indian should be exempt from paying his tax, that he pleaded the loss of his wife, who "did as much work as two bullocks."

Stuart Wood, in a recent number of the Quarterly Journal of Economics, says: "The agricultural processes of different countries are among the surest indications of the condition of the laboring population. In Germany it is a common sight to see a cart drawn by a woman and a dog. Where labor is dearer and money more plenty, or the people a little easier, a horse releases both alike from their unnatural task. In the United States, where labor is dear, costly agricultural machinery is extensively used in spite of the smallness of the farms. It is much used in England

also, because there the farms are large; and wages, although lower than in the United States, still far exceed those of other countries. In Russia, on the other hand, in Turkey and in Asiatic countries, we find the rudest tools: baskets are used instead of wheelbarrows, wooden plows instead of iron ones, and gangs of spade-men replace both the plows and the beasts which draw them. A part of this is no doubt due to sheer stupidity, but much is also due to the price of labor and the rates of interest."

The products of the soil are as various as the climate and geological character of the country. Fruits are abundant, of excellent quality, and extensively used by the whole population. Grapes are delicious, and within reach of the poorest, selling at the rate of two and three-fourths pounds for two or three cents. Apples, apricots, peaches, cherries, and plums have their localities of abundant growth, but no attention is paid to obtaining the best kinds, or improving those already possessed.

Of grapes, whoever has partaken of the famous "chaoush" from the Bithynian side of the Bosphorus, will forever eschew all others: thin skinned, small seeded, fine pulped, a dream, a delight, something to be talked about, *never* to find equaled. The vineyards of the Christians and the Moslems differ in one very important particular. The former, cultivate those kinds suitable for making wines; the latter, those that are best for food. While the one are making spirits, the other are preparing that grape molasses called "pekmez," which is extensively used. In it all manner of fruits are stewed or boiled and the preserves laid aside for winter use. With it savory dishes of quinces and meat, or chestnuts and meat are prepared, much relished by the poor.

The cereals of the empire do not differ much from ours. The exports are barley, maize, and wheat. Rye, oats, and millet give good results, and there are various other seeds of good native use. Looking only at the soil, climate, industrial population, and the rivers and coasts of her great inland seas, Turkey ought to be our formidable rival in the markets of Europe, but her state of paralysis is such that nothing is to be apprehended from that quarter. Destructive treaties with England and stupid

legislation on the part of her own government have reduced her to a state of hopeless bankruptcy.

Turkish agriculture and horticulture furnish all that the heart could wish in the shape of edible vegetables. All that we produce is there produced, with the exception of potatoes, which are imported from Europe; squashes of various kinds and measure unlimited; okra, spinach, celery; melons unrivaled in flavor and size; cucumbers of any length you choose.

Among the vegetables, several deserve special mention. The tuberous knobs of the roots of the *Cyperus esculentus* are eaten either raw or made into some kind of a preserve. It is called by the natives heavenly manna or "manna turano," is quite sweet but somewhat woody in texture and looks like a minute potato.

Two varieties of egg-plant are grown, one similar to our own and the other bearing a round, rich, dark purple fruit, called the apple of Sodom, because it is sometimes punctured by a minute insect, a species of cynips, which gangrenes the fruit and converts the inside into dry ashes while the outside preserves its plump and beautiful aspect.

The *Cicer arietinum* or chick pea, contrary to the other plants of the pea family, is distinguished by its serrated leaflets. The pea is of a bright yellow, half again the size of a large marrowfat. It is cooked with rice or other dishes, or is simply parched and sold in the streets to be eaten as we do peanuts. When freshly parched it has a peculiarly crisp, pleasant flavor. It is claimed to be the parched pulse mentioned in Scripture.

A dozen or more different species of gourd are grown for cooking purposes but I will only speak of the *Cucurbita claviformis* which reaches a length of seven or eight feet. It grows so rapidly when well watered that in an incredibly short space of time it forms a dense shady arbor under which the people sit and smoke. When young, not more than six inches in length, it is boiled and then stuffed with force meat and rice. This dish and meat balls wrapped in tender grape leaves and covered with a white sauce are exceedingly palatable. Owing to its rapid growth it has been thought to be the gourd of Jonah.

In opening this lecture I brought before you a picture of the most striking objects of nature as you approach the great city of

the East, and now as I close let me leave with you the impression that lingers still with me after the lapse of forty-three years as I sailed away into the unknown West. Behind me lay the city of Constantinople, each minaret and dome blazing with light as though shot with purest gold. To the east rose the majestic snow-capped peak of Mt. Olympus, its pure white crimsoned with the ruddy glow of the sun's last rays. From the mainland drifted over the spicy perfume of the heather and the thyme. The porpoises were gently sporting in the blue waters of the Marmora. As we steamed past the little islands of Halki and Prinkipo, around huge bonfires, the young men and maidens with hymn and dance were celebrating the summer solstice, leaping through the flames. A moment more and twilight deepened into night and the scenes of my boyhood's days had faded away into a memory of the past.

# PRACTICAL NATURE STUDY FOR THE PUBLIC SCHOOLS.

BY MRS. CORA C. STUART JONES, ROXBURY, MASS.

Read before the Society, January 30, 1904.

Nature study in the past has been narrowly interpreted as the bringing of root, branch, and bud to the schoolroom to be examined in detail: specimen study unrelated to its environment. It is said that "any one who can show an old thing in a new light is sure of a willing audience," so let us see if nature study in its modern interpretation does not take on a new meaning.

Great changes have taken place in the industrial, political, and educational world. Progress calls for change in old methods. Labor and capital have locked horns in a fierce struggle. Politics rise to snowy whiteness on the crest of a wave, only to plunge again into the black trough of the sea. No less does education feel the impulse of a mighty movement, resistless as fate, bearing it on to a new life.

Education has been formal and linguistic. To master the printed page has been its object. Today educators realize that something is wrong with the system, that a new inspiration must be found, and on every side we see a tendency to return to nature and simplicity.

The old system of *knowing* is giving place to the new system of *doing* and the *do-less* child of the city must be taught the handicraft which expresses the spirit within. Through action he must create, express his individuality, and produce something for the progress of civilization.

In adult science we have studied dead things too long. Science teaching dependent upon cabinets, stuffed birds and dried grasses must be replaced by field lessons, which means that our public school children shall be taken by classes to the shore and country, there to study birds in relation to insect life and the

preservation of forests, to study the toad as the salvation of the garden, to know soil and the reason for its productiveness. In fact, to know nature at first hand, and through intimate acquaintance and increased interest, to dignify farm labor and add a new interest to the vacation period of the city child.

Nature study means out-of-door life as opposed to indoor study — nature and not science.

Prof. Bailey says "Nature may be studied with either of two objects; to discover new truth for the purpose of increasing the sum of human knowledge — this produces scientists and specialists — or to put the pupil in a sympathetic attitude toward nature for the purpose of increasing the joy of living." This enriches our lives whatever our business or profession. "Nature study is spirit. It concerns the child's outlook on the world." "The best thing in life is sentiment born of accurate knowledge." More than any other recent movement, it will reach the masses and, by uplifting their ideals, methods will change.

I quote freely Prof. Hodge of Clark University and Dr. John Dewey of Chicago University, for these men practise the sermons they preach, and I believe, interpret truly the spirit of the New Education. Prof. Hodge's book on "Nature Study and Life" should be used in every public school. It is contagious in its interest and tells us practical ways of giving to the child the sweet and simple spirit of nature study. Universities, special schools and individuals may be leaders in new thought but, from the children of the public schools must come that quality of work which lifts science on to a new and broader plane.

Our curriculum is overcrowded. Practical nature study with its message of simplicity and action — two attributes of childhood — is through field work, gardening, manual training, cooking and sewing, and the schoolhouse as a social center, responding to the natural impulses of the child, and will surely subordinate and simplify the complex formal methods of today.

No better definition of nature study can be found than Prof. Hodge's, which is "Learning those things in nature that are best worth knowing, to the end of doing those things that make life most worth living"; in brief, knowledge in use, the active method opposed to the passive.

Life means combat and struggle. From earliest times man has brought into submission, fought and killed the lower animals. It is for nature study to direct that struggle, to teach which bacteria, insect and animal, are valuable or harmful; these to be studied out of doors in their natural environment, rather than as specimens in the schoolroom. Such knowledge is a valuable possession. Creative spirit is aroused. The economic necessity of such knowledge is apparent in the devastation of our crops alone. The study of it has great human value and it eliminates the desire to kill for sport's sake, substituting the camera for the shotgun; seeking right as opposed to wrong, construction opposed to destruction, and strengthens mental and moral force of character. This first-hand knowledge of animal life remodels our game laws and makes it possible to have squirrels and birds in our parks, the possession of the people rather than of hunters and collectors.

"What the best and wisest parent wants for his child that must the community want for all its children." We ask modern nature study to give back to the child what the change from agricultural to industrial life has taken from it and, in the rush of civilization, to find that peace which passeth understanding and the happiness that follows interest in one's environment. It seeks to give to the child becoming a slavish imitator within the limits of brick and mortar the creative power, a broad human sympathy, keen and accurate observation, unselfishness, and a large sense knowledge.

In the agricultural life the farmhouse was the center of activity in which was carried on the typical forms of industrial occupation. Children helped to shear the sheep, card the wool, and ply the loom. No button was pressed to flood the house with electric light but, from the killing of the animal to the dipping of the candle, children shared the labor. The firewood cut in the forest, the churning of butter, and cobbling of boots were to the children a personal concern.

We cannot overlook the factors of discipline, of character building involved, training in responsibility in habits of order and industry, prompt obedience, and the obligation to produce something in the world, and to do his own part faithfully in

coöperation with others. There came the intimate acquaintance with nature at first hand, constructive imagination and logical thought.

No object lesson given for the sake of information can compare with the acquaintance with plants and animals gained by actually living among them. The little red schoolhouse with its three Rs gave them the linguistic knowledge of their time supplemented by the activities of the home. Today the factory and apartment-house child needs a schoolhouse of three Hs: head, hand, and heart.

The city child taught to avoid the laborer and his handicraft learns contempt for labor and loses the sympathy induced by keen observation. True the city youth gains toleration and a breadth of social judgment, but why, when a Chicago firm advertised for one hundred boys and two hundred applied, did it choose the country bred. Because those were not afraid to work. It is said that "City life wears itself out in three or four generations unless rejuvenated by fresh blood from the country. Humanity like giant Antæus renews its strength by contact with mother earth.

Educators, realizing that primitive industries cannot be reinstated, strive to give the child contact with the earth without the early hours or nerve-straining labor of the farm. In England the Reddy school successfully trains the senses along the line of primitive industries, in gardening, swimming, and out-of-door sports. Scotland carried the idea to extreme. Boys were thinly clad and lived out of doors in all seasons, devoting a few hours to book study. The parents protested that they did not send their children to be experimented on like guinea pigs, but actual measurements and statistics showed an increase in physical strength and mental activity, and the protest subsided.

Mr. Bradlee of Chicago has founded an ideal school in which the Christlike spirit prevails, and the hardened little criminal from the street is by magic transformed into the self-respecting scholar. Here "one former is worth a thousand reformers."

In these schools the community spirit is cultivated rather than the scholastic; that which makes the child a law-abiding citizen and a good neighbor.

Scholarship is not the ultimate aim of our school population. Scarcely one per cent of the school population attains higher education; only five per cent attains the high school. They do not seek intellectual life. Their problem is work, and the school a tool with which to earn their bread and butter. Therefore, if our schools through activities appealed more to their dominant interests, the hold of the school would be more vital and prolonged.

Intellectual life should not be the sole aim of the school, but each child should be trained as a member of a small community, filled with the spirit of service and the power of self direction. His intense activity needs no repression but intelligent direction. Everyone who has trained a family of children knows that work and not punishment is the cure for mischief. If the restlessness of the schoolroom found its outlet in a fair proportion of hand work we would hear less of discipline. Only last week a little boy of seven told his teacher in basket weaving that he had watched the clock all day until it was time to come to her.

The *doing* side of life must have its fair proportion of hours, and training in accuracy must fit pupils for life work. Ideal, intellectual education is not to be undervalued. The few who attain it have ample opportunity in the high school and university. The elementary pupils need education that gives them interest and happiness in their environment. We need to emphasize the community spirit as opposed to the selfish absorption of facts.

Nowhere is the community spirit better trained than in the school garden. Here is coöperation, natural division of labor, unselfishness. In the schoolroom it becomes a crime for one child to help another; in active work assistance is not a charity but an exchange of ideas, and the prize is awarded, not to the one who has absorbed most for himself, but to the one who has done the best quality of work, the real standard of value in any community. Gardens appeal more to the city child than the country bred, whose world is a garden. Knowledge begins in wonder. Every discovered fact turns up a dozen mysteries. Contrast is a potent cause of attention, a stage whisper following a loud tone, a sour taste, a sweet one, charm of country to city

children, the spring flowers after the snow. France allows no school-yard plan without a garden spot and eighty-one thousand gardens lie between Sweden and Switzerland. The benefits are past the need of demonstration, yet in our city the few school gardens we have are supported by the Horticultural Society, Civic League, Twentieth Century Club, and private purses. If we cannot have gardens in all our school yards we can plan for the new school yards. We could have an ideal vegetable garden in a corner of our Common where classes of children could visit for observation. Our Public Garden could have less of exotic bloom and more of the common flowers of garden and field, daisies, buttercups, and wild roses. Bird food and nut trees would make it a home for songsters and squirrels and a part of our garden, at least, would be a paradise for the vacationless child. Vandalism is the direct result of this lack in our education.

It is a marvel that when school gardens have proven such a benefit to education abroad, and when clubs and organizations have accomplished what they have in city and country schools, and when individually so many of our school committees believe in their value, that our educational system makes no provision for either school gardens or field work for the children. The pressure from the university and the kindergarten, the top and the bottom, will soon force it through the elemental school. Why not open the door for it before it breaks in of its own weight?

A brewer in Chicago offered a vacant lot next his brewery for a garden. It was put in condition. Tenement-house children were given portions to plant, under instructions. To avoid vandalism, seeds of vegetables and flowers were given freely in the neighborhood. Children left the streets for the garden. No mature vegetables were stolen, but in pots and boxes throughout the district, plants and flowers testified to general interest. The brewer said he could not renew the experiment, it was too expensive, as he spent most of his time at the window watching them.

Referring again to Prof. Hodge, I speak of his garden planned, I think, to appeal to the deepest interest in children because it is neither a vegetable or flower garden, but a life garden. Its flowers and bloom give play to the artistic fancy and imagination

of the children. Its nut and fruit trees and berry-bearing shrubs inspire interest that centers in productiveness, and in the animal, insect, and bird life appeal to the very heart of the child. Freedom and motion are dear to children. Every child longs for the freedom of the bird, to hop and fly about at will.

This garden was a corner lot of waste land in the City of Worcester. One corner is planted in sunflowers, a bright golden corner, the delight of children and seed-feeding birds. In the center is a shallow fountain basin, alive with polliwogs and fishes, feeding on young plant life supplemented by dog biscuit; the water black with the little wriggling bodies of polliwogs. Here the children see the development from egg to toad, nature's scavenger without price; realize the necessity of pure water and natural food; understand the work of purification done by snails; and when later, in the cool earth under a board, resting from their labors of fly and insect catching, the children find the toads, the desire to kill them will have passed away. Near by are rose bushes with plant lice. The boys are taught to catch ladybugs and put them on the bushes, where they can be seen rapidly gathering their food. They will work harder to catch the bug and cleanse the bush than the average boy to chase and kill the butterfly.

The most interesting inhabitants of this nature garden are the birds. In a shaded, sheltered corner, an earthen bowl for bathing, filled with sand, stones and clear water, rests on a four-foot post. Beside it is a pan of mud for robins' nests, and neighboring bushes are hung with thread, string, and wool. All about the garden are growing trees and shrubs suitable for bird food: mountain ash, hackberry, wild apple, scarlet elder, mulberry, and black cherry. Is it not natural for birds to stop here in their flight to enjoy such abundance and, once having stopped unmolested, to remain? At midday the bathing bowl is crowded with eager bathers and reminds one, to quote Prof. Hodge, of the "next-next" in a barber's shop on Saturday night.

The air is filled with the sweet notes of robin, oriole, bluejay, and martin, but nowhere do you hear the sparrows' chatter. The people of Worcester have made it possible for native birds to multiply by wisely and humanely exterminating the English spar-

row. During the months between December and March, when the native birds had flown, they were fed on poisoned grain and given a quick and painless death. An expenditure of $2.40 for every 600,000 sparrows has given to Worcester quiet and cleanliness about the houses, sweet notes of numberless native birds, trees and vegetation unusually free from insects.

Little children playing in the sand pile or working in the garden, what have they learned? To love nature in a true and simple way, to know that the birds are filling the air with music and saving the foliage, that the toads are patrolling the grounds and keeping the soil sweet, that the ladybugs are caring for the roses, the polliwogs are purifying the water, little dogs in the kennel are playing police, that the shrubs, trees, and flowers are giving their treasures, food to the birds, shade to the children, beauty to the world.

What practical benefit has come from this garden? The spirit of love and kindness has entered into the public schools, hundreds of boys have laid aside sling shots to build bird houses. Vandalism and heedless destruction of private gardens have greatly decreased. In the immediate neighborhood there was an orchard of plum trees, fruitless and misshapen, where the insects and a disease called the black knot held high carnival. A boy asked permission to restore the orchard. He worked faithfully for several seasons, inspired by practical instruction and interest growing out of his own observation. Trees were pruned, soil nourished, disease removed. Today it is a fruitful orchard of beauty and blossom. Boys in the neighborhood caught the spirit. Flower gardens, neatly bordered walks, well kept lawns and bird houses testified to hours of well-spent energy that might have sought channels of destruction and law-breaking. It is said that every plum tree in Worcester has been restored to fruit-bearing vigor.

What can be done in one city can be done in another. Let our boys in manual training make bird houses and be taught that the world would become a desert in nine years but for the insect-eating bird, that 5000 eggs of plant lice were found in the crop of one chickadee. Then, boys will not destroy birds' nests. Tell them how the frog purifies the water for cattle and what the

toad means to the garden, and they will not cover the spring pools with sling shot and gun, but spend their energies gathering eggs to be hatched in glass bottles.

"Children's boundless activities find their outlet in destruction because of their ignorance. Give the average child the rudiments of knowledge concerning the uses of our plants and animals and their destructive energy becomes protective."

No better illustration can be found than occurred in Worcester. One day in the spring Prof. Hodge found on the shores of a marsh pond the mangled bodies of three hundred frogs and toads left there by a gang of street boys. Indignant he started for City Hall to notify the police, but conceived a better plan and sought the University. From there he sent a circular letter to all the public schools, offering money prizes for the best composition on "The Uses of the Toad." Hundreds of school children responded, rewards were given, and not a dead frog has since been found in the vicinity.

Why should the toad be studied by children? Because it is the commonest animal we have and costs nothing for specimens. They are terribly abused, and instruction brings about moral culture. Its life history from egg to tadpole and from tadpole to frog is exceedingly rapid and easily observed, and its life-work is of great human importance.

Aside from bacteria, insects are the worst enemies of man and, since they cause a loss of $400,000,000 annually, we should educate the community to intelligently discriminate between those which by cross pollination give us our most valuable fruits, and those which divide the product of the farms. The loss from insects for Massachusetts is $10,000,000 annually. One toad can catch eighty-six house flies in ten minutes; moths, bugs, worms, weevils, and snails in countless numbers are consumed. If we could have plenty of toads we could save at least $1,000,000. There is much that makes the study of the toad worth while to children and adds new interest to country life.

The children also planted nuts on land where permission was given by the owners, and today little groves of nut-bearing trees are of absorbing interest.

The child who grows a seedling tree in the school window box

or in a little tin can of its own, and who transplants it in the school garden or by some country wayside during a field day, will have an abiding interest in its growth. The love of forestry will have been planted in the child's heart.

Peach seeds are distributed free from Cornell and they grow four feet in one season. "Rather than send to jail the boy who destroys your peach tree, induce him to raise a peach tree, for the production of property places the boy on the side of law and order."

What we need is an appropriation for field work that it may become a part of the regular course of instruction, the money to be spent for car fares to take the children out of the city during the spring and fall terms, and a public sentiment strong enough to arouse the teachers to an appreciation of the need of the outdoor nature work in the development of character and community spirit.

The Alpheus Hyatt Memorial Fund is being raised in Boston for exactly this purpose. The income of this fund is distributed by the Superintendent of Schools to teachers who are best fitted to direct children along the lines of nature work, and many classes are taken to the country. Nature study can be taught without much knowledge if one sees accurately and infers correctly. It needs enthusiasm and sympathy.

All honor to the Horticultural and the Audubon Societies, and to the nature-story writers who are leavening the hard loaf baked in the hot ovens of formal knowledge. Let the public-school children come freely to your exhibits and there will be less destruction of flower beds in the suburbs. Give freely to the Memorial Fund that more children may visit the world's garden.

Public sentiment can demand that the highways and parks should, in part, be planted with a variety of bird-food trees, that there be a free distribution of mulberry, wild cherry, and berry-bearing vines to property owners who would plant them. Park ponds could be made breeding places if the banks were natural and sloping.

In spite of the hum of city life and adverse conditions, birds and squirrels live on our Common. How rapidly they would multiply if nesting material and food, bathing places and shelter

were provided. Fountain basins in our playgrounds and school yards, full of life so fascinating to children, would cost less than the Juvenile Court, filled with misdirected energy. It would cost less to remove the sparrows and multiply native birds than the costly spraying of city trees.

All sciences can be taught along nature lines — electricity, winds and tides, geography, human nature, and religion. Each of the five senses should be cultivated so as to give experience, constructive and positive.

Two geography lessons, one heard in the East and one in the West, remain as lasting impressions on one's memory. In a crowded schoolroom in the East the overtaxed teacher spent time and strength in keeping order. Shuffling of restless feet, dropping of pencils, disobedience prevailed, while in a remote corner a small boy was reciting the products of the New England States.

In the West the lesson was on the products of the South. The children were studying cotton and wool fiber and one group spent thirty minutes freeing one ounce of cotton from the seed. The wool was separated much faster and was found to be of greater length. They easily understood why wool industries appeared first in the South and why their grandfathers wore wool instead of cotton clothing. They also discovered that the wool fibers clung to each other and were more easily spun. Aided by suggestions from the teacher the children worked this out themselves, recarding it and preparing for spinning by simple devices easily made for the schoolroom.

The children were interested to hear all about the improvements up to the complete loom. They studied the fibers, the conditions of soil necessary for its growth, the places of manufacture and distribution, and the influence which these inventions had made upon humanity. The history of all mankind was centered in this evolution of the fiber into clothing, and the children who had handled it, who had seen the sheep from which the wool had been sheared, needed no discipline.

Keen interest prevented any disorder except that which is natural to a busy workshop. There was not complete silence. Hands and feet were not in exact positions. Perfect quiet is a galling

bond to a child and teachers of manual training and school activities all testify to the ease with which they maintain discipline. This method of teaching gives children real motives, experience and contact with realities.

Plato describes the slave as one who in his actions expresses the ideas of another man. In this industrial age when machinery performs so great a part of labor it is necessary that we shall express our individuality through our activities.

Study the lives of scientists who have given us our antitoxins, who have checked the ravages of insect pests; they were keen observers and knew the habits of life at first hand.

Consider the insects that are sweeping over the country at present: the boll weevil of the South which lays its egg in the boll center, later to eat its way out and destroy the threads; the brown-tail moth, brought to Somerville on imported shrubs, and now costing thousands of dollars to exterminate, forces property owners to clean their trees in coöperation with their neighbors and to practise nature study in self-defence. If, from the first, public-school children had studied the pests out of doors and had been allowed to gather the cocoons, much destruction would have been avoided. Rochester has cleansed its trees of caterpillars by this means.

The Hancock School at the North End has for years demonstrated the value of true nature study. With no school garden, with no growing thing in sight except its one cottonwood tree, with no appropriation from the city, it has sent its hundreds of children out into the wide world.

The recent death of its master, Lewis H. Dutton, has brought an incalculable loss to thousands of the poor. Here the foreign-born child, scarcely more than a baby, with its clothes sewed on for the winter, unable to speak our language, enters the kindergarten. It is through nature work that his interest is first aroused to learn English. When he sees the fishes in the aquarium, the snails and the newts, he must express himself and ask questions. He finds on the walls pictures suited to his intelligence, birds, animals, and flowers; not the grim faces of warriors and busts of patriots unrelated to his experience.

Attractive as are the pictures of flowers and field they recall

no memory of loved brooks and meadows until he reaches the grade where, by the well-laid plans of Mr. Dutton, assisted by private purses, he is taken into the country and his sense-knowledge grows. From real experience mental pictures will ever after be recalled at the sight of a picture of bird or meadow.

We of the avored class, whose memory at the sight of a flower recalls childhood days and long hours spent in the mountains, cannot appreciate the emotionless condition of the mind of the tenement-house child until he has this experience. Who can measure the civic pride, the patriotism and the elements of good citizenship that have been stirred in the hearts of our foreign population by the experiences of field day in the Hancock School. How many thoughts have been turned into healthy channels and how much of education has been vital by the doing.

May not mothers, fathers, and teachers interest boys to follow agricultural pursuits, to cultivate certain fruits and vegetables that will be profitable enough to compare with the excitement of city life, and make nature study not scientific names and the counting of legs, feathers, and scales, but knowledge of what work each form of life performs in the economy of nature.

Prof. Hodge says "Original research is the breath of mental life; in the ideal school it will have a central place." "To allow a child to grow up without planting a seed or rearing a plant is a crime against civilized society and our armies of tramps and hoodlums are among the first fruits of an educational system that slights this important matter." "Pure air and pure water, forests, game, birds, and fishes add to the world's wealth. Pests, noxious weeds, and injurious insects menace the public good. It is the business of the public school to teach the economic value of these things.

The San José scale, the gypsy moth, the chinch bug hold in their power the forests and wheat crop of the country. The remedy lies largely with the insect-eating bird. When we know that the codling moth destroys from 25 to 75 % of the apple crop, and costs the state from one to four million dollars annually, let us teach the children to spare the downy woodpecker and bat — the day and night police — for if they destroy but one female

daily from May until July, they will have saved 275 bushels of apples.

Let us consider what nature study will do for forestry. It has been said that "what we would have in the national life we must introduce in the public school." What greater need have we than to save and increase our forests. Fire and careless lumbering are robbing us of our inheritance. From the redwoods of California to the Christmas trees in Maine our woodlands cry out to the children to save them.

If the child in the elemental school raises his seedling tree, idealizes it with sentiment and song, plants it on Arbor Day where he can visit and watch its growth; if nature work leads him to study the tree from all points of view surely he will love and value the forests and wanton destruction will cease. Alice Freeman Palmer has said, "Give children large interests, and give them young."

Arbor Day should be celebrated in every school with song and poetry and sentiment indoors, and real tree planting out of doors. Mr. Morton of Nebraska, Secretary of Agriculture, conceived the idea of Arbor Day in 1872, and a resolution was passed that a day in April be set apart for tree planting, to be named Arbor Day; its object to avert treelessness, to improve climatic conditions, for the sanitation and embellishment of home environments, for the love of the useful and beautiful, combined in the music and majesty of a tree, as fancy and truth unite in an epic poem.

Forty-two states observe Arbor Day as a legal holiday and in many schools the day is appropriately celebrated, but it should be universally a day when children assist in the actual planting of a tree.

When we know that railroads, manufactures, and forest fires consume in the United States 25,000 acres every 24 hours, we cannot expect Arbor Day to replace the loss, but it will set in motion those ideas that will develop systematic forest management.

Let the young be taught that they herald an era of forest planters not of forest destroyers, for "enlightened public sentiment is better than a national police." Every graduating class should hear a few practical lectures on forestry. Boys could be called

Forestry Cadets and the magic of the name would result in less destructive camp and forest fires and careless abuse of young trees.

In the White Mts., on a rough mountain road, there is a large sugar-maple tree bearing this inscription:

"Most sacred tree that ever grew
True type of Him whom sinners slew;
From thy pierced side thou dost bedew
With sweetness, those who thrust thee through.
Now a new name I give to thee,
Be called henceforth the "Christus Tree."

Old and young have memorized the verse. Why should not such sentiments be hung on trees in our school yards, or upon especially noble trees in our parks to idealize and sanctify them?

In New York newly-planted trees bear this inscription:

"This tree is a friend to children, be kind to it."

One man tenderly cared for his new tree by watering it daily with water from ice-cream freezers and lived to repent his ignorance.

Brookline makes beauty perpetual by planting its new streets. Why does not Boston demand that its new streets be planted and that the old trees have better care. This is a part of the nature study that commences in the kindergarten and is expressed in our Outdoor Park Associations. We stand next to the foot of the list for wayside trees.

Lastly we turn to literature to find our greatest men are those whose intimate knowledge of nature has been their bond with all humanity. Such training of the senses as Shakespeare received will go far toward bringing in the golden age of education. Creative power comes directly from experience. We tell best what we have seen ourselves not what others have told us.

Shakespeare's real educators in picturesque and richly-storied Stratford were the dark forests of Arden and the flowered meadows, not the musty volumes in which scholars seek his inspiration. Shakespeare, the best educated man of any age, tells us that he learned from books only "words — words — words."

The spirit of the midland country breathes through his pages

and much of his work is idealized pictures of what he saw with his own eyes. His reference to natural objects is exact and faultless with but one exception, when he miscalled the color of the heart of one flower. Milton who knew the country late in life filled his writings with inaccurate statements. Like many of us, he "Passed through the streets of By and By and arrived at the house Never." Shakespeare constantly strengthened his verse by references to nature such as these:

"She never told her love,
But let concealment like a worm i' the bud
Feed on her damask cheek."

"And this our life exempt from public haunt
Finds tongues in trees, books in running brooks,
Sermons in stones and good in everything,
I would not change it."

As a bird student he knew the ugly eye of the lark and the beautiful eye of the toad and said,

"Some say the lark and loathed toad changed eyes."

"The eagle suffers little birds to sing
And is not careful what they mean thereby,
Knowing that with the shadow of his wing
He can at pleasure stint their melody."

"Kate, like the hazel twig,
Is straight and slender, and as brown in hue
As hazel nuts and sweeter than the kernel."

How many boys know positively the color of a swan's leg. Shakespeare tells us,

"For all the water in the ocean
Can never turn a swan's black legs to white
Altho' she lave them hourly in the flood."

"The southern wind
Doth play the trumpet to his purposes,
And by his hollow whistling in the leaves
Foretells a tempest and a blustering day."

And now to close I quote a paragraph from "The People of the Whirlpool":

"I am convinced that gardening is a truly religious life, for it implies a continual preparation for the future, a treading in the straight and narrow way that painful experience alone can mark, an absorption beyond compare, and the continual service of hope, love, and above all, of entire childlike faith.

"When the time had come in the creative evolution for the stamping of the perfected animal with the Divine image that forever separates him from all previous types, it was no wonder that God set man, in whom the perpetual struggle between body and soul was to take place, in a garden for his education."

## Discussion.

Henry L. Clapp, Principal of the George Putnam School, Roxbury, spoke upon the subject of the lecture as follows:

Last Monday I was asked to collect for the St. Louis Exposition sample papers of work in nature study done in the schools of Boston. Accordingly during the week I have visited the schools where nature study has received attention. I find that the nature study in each school is very largely determined by the environment and the accessibility of the material to be studied, as it should be. I find also that, whatever one's own personal experience may have been, he can tell only a part of what should be told. The experiences of many persons on the same subject must be brought together in order to give an approximately complete statement of it. So I will give another phase of the subject so well treated by the speaker of the day.

During the last twenty years the pupils in the George Putnam School have studied natural objects — grass, mosses, lichens, leaves, blossoms, seeds and seed-vessels, wild flowers, vegetables, ferns, fruits, rocks, minerals, birds, and insects. These things have been studied in the schoolroom, the wildflower garden, the vegetable garden, and in Franklin Park. Every week of the school year the children have expressed their observations by drawing, painting, and writing. In no other hour of the week

do they work so interestedly, spontaneously, vigorously and successfully; no other hour has so strong an influence in their development. They like to draw what they see; a color-box is a treasure to them and nearly every pupil has one, and they are as ready with their pens as with their pencils or brushes.

One teacher has a troop of children up at five o'clock summer mornings in the Park studying birds; another gives them a thorough acquaintance with fifteen species of ferns; another has the children observe the glaciated rocks, the dykes in the pudding-stone ledge, and the stratified rocks; another takes her class out after a rain to observe the action of water running down Columbus Avenue; another takes out the five-year-olds to see the butterflies, squirrels, sheep, flowers, etc.; another gives two score of pupils exercise for an hour or two every week in the school garden; and so there is plenty of first-hand knowledge and first-hand material to talk about, write about, and represent in color.

Here is work from eight grades illustrating what has been done for many years. The papers are all first drafts directly from the children's hands.

The spelling, writing, and grammatical expression may be erroneous, the color representation may be crude, showing that teachers have something to teach and pupils something to learn, but the imperfections attest the genuineness of the work. The tracks of the children are not covered up; here is no fake work, but nature work; not of the ideal sort, but practical and practicable. Many forms of nature work recommended are impracticable for public schools as now constituted.

Prof. F. A. Waugh of the Massachusetts Agricultural College, Amherst, said that for a long time he had been much interested in the subject of nature study in the schools. The chief difficulty was in obtaining teachers capable of carrying on the work. There is great need of such teachers who are competent for this special line of instruction, but there always will be found one or two specially adapted for it.

He had no sympathy with the sentimental gushings of those who presented the subject with such expressions as, "Oh! the lovely, lovely flowers; the beautiful, beautiful birds." Such a method of treatment should be avoided.

In his work he meets with two classes of people; the farmers, whose education is derived from practical experience, and the professionally educated. Here are two sorts of education; what we need is to combine the two; the education that comes out of books and that which comes out of experience.

Miss Frances Zirngiebel said that the Massachusetts Horticultural Society had done a good deal for practical nature study in giving this opportunity of discussing the subject. Scientific knowledge is a necessity of modern life and nature study is a practical thing and not useless as some think it.

Hon. Aaron Low said that nothing was more important for the future generation than the study of nature. The garden is a book and even the study of a foot of soil will show marvels of interest. The study of nature can but broaden the mind.

Miss Brassil, supervisor of nature study, Cambridge, said she hoped to listen this morning, but if a word of hers would be of help she was willing to give it. The little folks take to nature study naturally; they love life and action and are interested in anything that has to do with nature. Nothing so teaches the child a regard for private property as personal ownership. Let the children own something themselves and they will understand the feeling that others have and respect their rights. The one thing needed is coöperation between school authorities and public sentiment.

Miss Gates, science teacher in the Hancock School, Boston, stated that seventy-eight classes in field work had been taken out during the year, the funds for car fares having been provided by private individuals. She thought instruction by this method produced valuable results.

# THE ARNOLD ARBORETUM.

BY JOHN G. JACK, JAMAICA PLAIN, MASS.

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Delivered before the Society, February 6, 1904, with Stereopticon Illustrations.

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The botanic garden may be said to have had its origin in simple collections of plants for medicinal purposes. Our first authentic records seem to date no farther back than the time of Pliny, in the first century of the Christian era. Originally established for medicinal or utilitarian purposes, there later developed considerations of beauty, and still later, or within one or two hundred years, they have been maintained for comparative study and scientific investigations into plant life.

While in early times the collections were of a private or semi-private character, many are now the property of the people and of wide educational value. Of over two hundred which might be enumerated as existing today few are large or well endowed or of wide fame or importance, like the famous institution at Buitenzorg, in Java, and the great collections at Kew.

An arboretum may be considered as a specialized botanical garden, restricted to such plants as have perennial woody stems above the surface of the ground. Primarily intended to represent a collection of trees, it is now generally understood to include shrubs and woody vines or climbers, although a collection of shrubs is sometimes given the distinguishing name of fruticetum, while the ground occupied by woody vines or climbers may be designated the viticetum. However, as there are no strict lines which separate vines from ordinary shrubs or shrubs from trees, the general term arboretum is usually regarded as sufficient to include all. In a rigorous climate like ours this, of course, applies to hardy, woody plants.

As there is no strict dividing line, but many intergradations between trees and shrubs, so no sharp difference can be drawn

between these and what are known as herbaceous plants, because many of the latter are distinctly woody at or below the ground, and in our gardens we have many species of tropical or subtropical plants which we treat as tender annuals or greenhouse species, but which in their native habitats become decidedly woody-stemmed shrubs or trees. In most botanical gardens, or collections of hardy living plants, both herbaceous and woody species are included, sometimes grown together on the same ground, sometimes kept on separate tracts. The former plan is common in many of the smaller botanical gardens in Europe, which are usually a very few acres in area, and in the botanical garden of Harvard University at Cambridge. The latter plan is followed at Kew Gardens, in England, which are large enough to admit of giving separate tracts of land to the botanic garden proper and to an arboretum which approximates in area our own Arnold Arboretum, the collections in which are limited to hardy woody plants, herbaceous plants forming no part of its scope or scientific arrangement. The original deed of trust between the Arnold trustees and the college, which was the foundation of the Arboretum, stipulated that hardy herbaceous plants should be included in the collection. As yet it has not been deemed wise to give them place chiefly because of the limited endowment and also because at the Harvard Botanic Garden at Cambridge herbaceous plants are chiefly grown.

While there are several public or semi-public arboreta in Europe, the most famous of which is at Kew, the Arnold Arboretum has the distinction of being the first institution of its kind in America. The first botanic garden in the United States of which we have record was started in Philadelphia, in 1728, by John Bartram, and the existence of the Harvard Botanic Garden dates from 1805. In these and other institutions trees and shrubs found a place, but no ground was given exclusively to them. Since the foundation of the Arnold Arboretum, the Missouri Botanical Garden at St. Louis and Leland Stanford Jr. University in California have started similar collections, and the energetic management of the New York Botanical Garden has made plans for an arboretum which is likely to take high rank as an educational and scientific institution.

It should be distinctly understood that the Arnold Arboretum is not a forest school but comprises a collection of trees grown according to the views of the arboriculturist or landscape gardener and not under sylvicultural conditions calculated to satisfy the requirements of the forester, or for the development of good timber producing examples.

The private enterprises of such men as John J. Dixwell, H. H. Hunnewell, and C. A. Dana in making collections of their own, which were more or less accessible to interested students, no doubt helped much to develop the interest in our trees which is manifested on every hand at the present time.

The Arnold Arboretum owes its existence to the fact that, about 1870, James Arnold of New Bedford, Massachusetts, left a certain portion of his estate to be held by trustees "in trust, to be applied for the promotion of agricultural or horticultural improvements, or other philosophical or philanthropic purposes at their discretion."

This property, then estimated in value at about one hundred thousand dollars, was placed in the care of three trustees, George B. Emerson, John J. Dixwell, and Francis E. Parker. The first is well known as the author of that standard work "The Trees and Shrubs of Massachusetts," and Mr. Dixwell was an enthusiastic cultivator of choice trees, and it was very natural that through their interest in the subject the foundation of an arboretum was decided upon.

The Corporation of Harvard College was given the responsibility of perpetually holding the trust and carrying out its terms. This was with the understanding that the University authorities would, as a foundation for the Arboretum, appropriate enough land from the farm of the Bussey Institution, in what was then known as West Roxbury, and which was under the control of Harvard and not long before had been given by Benjamin Bussey as a school of practical agriculture and gardening. By such an arrangement the Arnold fund was saved for endowment without outlay for land.

In the deed of trust between the Arnold trustees and the College the latter accepted it for "the establishment and support of an Arboretum, to be called the Arnold Arboretum, which shall

contain, as far as practicable, all the trees, shrubs, and herbaceous plants, either indigenous or exotic, which can be raised in the open air at the said West Roxbury, all which shall be raised or collected as fast as is practicable, and each specimen thereof shall be distinctly labelled, and to the support of a professor, to be called the Arnold Professor, who shall have the care and management of the said Arboretum, subject to the same control by the said President and Fellows to which the Bussey Institution is now subject, and who shall teach the knowledge of trees in the University which is in the charge of the said President and Fellows, and shall give such other instruction therein as may be naturally, directly, and usefully connected therewith." (47th Ann. Rept. of the President of Harvard College, 1871–1872, p. 78.)

This agreement was formally made March 29, 1872, the College setting apart about one hundred and twenty acres from the Bussey estate upon which to establish the Arboretum. As a great deal of confusion exists regarding the relation between the Bussey Institution and the Arnold Arboretum, many persons regarding them as one and the same, it may be said here that, while the Arboretum is regarded by the Corporation of Harvard College as a department of the Bussey Institution, they have no connection in direct administration or sharing of funds, being distinct organizations, although both under the trusteeship of Harvard University.

The fact that they adjoin and have no visible boundary, and that the use of the Bussey land really made it possible to establish the Arboretum within the city of Boston and give it opportunity to develop as it has done, is a very natural reason for associating the names of the two institutions as synonymous, especially as other portions of the Bussey estate have been allotted to the use of the Arboretum until nearly two hundred acres of the original farm have been transferred to this purpose, a property several times exceeding in value the total amount left by Mr. Arnold.

In recognition of this really great benefit from Benjamin Bussey our institution is sometimes called "The Arnold Arboretum and Bussey Park"; but, except in official records and plans, the latter part of the title is very commonly omitted when

the Arboretum is referred to. The time will come when the Arnold Arboretum and the Bussey Institution will work together in the same general direction, with one administration. In their studies the students of the Bussey Institution now have the advantages of studying among the living collections of the Arboretum. The Arboretum maintains no school or classes but special students find instruction there, and some instruction, of a popular nature, has been given to teachers and others at regular times during the past twelve years.

In accepting the Arnold trust the University agreed to a provision by which two-thirds of the increment of the Arnold bequest should be reserved and reinvested annually until the fund had amounted to one hundred and fifty thousand dollars. This sum was reached in 1879, and since that time five per cent of the income has been reserved every year.

During 1877–1878 a general planting plan for the Arboretum was made by Mr. Frederick Law Olmsted, and about this time arose the proposal that the Arboretum should be included by the city of Boston in its general park system, which was then under consideration and in its beginnings. It was proposed by the authorities of the College that if the city would purchase and contribute some small adjoining estates, comprising about forty-eight acres of land, to that already assigned to the purpose by Harvard, and if the city would agree to build the roads, maintain them, and police the place, the University would, under certain restrictions, throw the Arboretum open to the public, virtually making it a public park. After much agitation about the matter, the City Council of Boston, in December, 1881, authorized the Park Commissioners to spend the sum of sixty thousand dollars in the purchase of the additional tracts of land desired.

On Dec. 30, 1882, a formal and final agreement was arranged by the Park Commissioners, representing the city of Boston, and the corporation of Harvard College. By this compact the city by technical right of "eminent domain" formally took possession of the lands of the Arboretum, then leased them to Harvard for the term of one thousand years at a rental of a dollar a year, with the privilege of renewal of the lease.

As much interest is often expressed as to the terms of the

lease, which are very unusual, the principal parts are here given in the original form.

"This Indenture made the thirtieth day of December, in the year eighteen hundred and eighty-two, between the City of Boston, a Municipal Corporation in the Commonwealth of Massachusetts (hereinafter called the City), of the one part and the President and Fellows of Harvard College, a corporation established by the laws of Massachusetts (hereinafter called the College), of the other part.

Whereas, the Board of Park Commissioners of the City of Boston, by virtue of the authority conferred upon said Board by Chapter one hundred and eighty-five of the Acts of the Legislature of Massachusetts of the year 1875, and by the City Council of said City of Boston, by a certain written instrument of even date herewith to be recorded with the Suffolk Registry of Deeds, have taken and located as and for a public park that tract of land in that part of said city known as West Roxbury held by the College and by it dedicated to the use of the Arnold Arboretum, so called, together with certain adjoining tracts the property of other persons deemed by said Commissioners convenient and necessary for use in connection therewith, for the purposes and under the powers and limitations set forth in said Act and Acts in addition thereto and amendment thereof.

And whereas, by an act of the General Court of Massachusetts passed on the twenty-ninth day of March, in the year 1880, it was enacted that in case the said Board of Park Commissioners deemed it desirable so to take the said lands for the said purposes the City was thereby authorized to lease such portions of the said Arboretum and adjoining tracts so taken, as the said Board of Commissioners might deem not necessary for use as park ways and grounds to the College, to be held to the same uses and purposes as the said Arboretum was then held under the trusts created by the wills of Benjamin Bussey and of James Arnold, and for such a term and upon such mutual restrictions, reservations, covenants, and conditions as to the use thereof by the public in connection with the uses of the same under the said trusts, and as to the rights, duties and obligations of the contracting parties as might be agreed upon between the said Commissioners and the College. And the Board of Park Commissioners on the part of the City and the president on behalf of the College were respectively authorized to execute and deliver the said lease.

And whereas, the said Board of Park Commissioners deems such portion of the said Arboretum and adjoining tracts as is hereinafter described and leased to be not necessary for use as park ways and grounds and considers that the same will be better and more advantageously enjoyed and used by the public as a part of the said park if the same be leased to the College for the purposes of the said trusts and upon such terms and subject to such provisions with regard to the use thereof by the public as are hereinafter contained. And it has been agreed between the said Commission-

ers and the College that the same be leased to the College for the term and upon the mutual restrictions, reservations, covenants, and conditions hereinafter expressed.

Now this Indenture witnesseth that the City by virtue and in exercise of the power and authority given to it by the said act and of every other power and authority it hereto enabling doth demise and lease unto the College all that parcel of land delineated on a plan entitled "The Arnold Arboretum" . . . .

To have and to hold the premises hereby leased (hereinafter called the Arnold Arboretum) unto the College and its successors and assigns for the term of One Thousand Years from the date hereof without impeachment of waste upon and for the same trusts, uses and purposes as those upon and for which the said land held by the College for the purposes of the said Arboretum at the said time of the passing of the said act of the year 1880, was then held under the will of Benjamin Bussey and the will of James Arnold and a certain indenture dated the 29th day of March in the year 1872, and made between George B. Emerson, John J. Dixwell and Francis E. Parker, as trustees of the will of the said James Arnold of the one part, and the College of the other part, in which indenture the trusts provided for in the said will of James Arnold are declared in pursuance of the directions in the said will contained, yielding and paying therefor during the said term the yearly rent of one dollar.

And the City covenants with the College, its successors and assigns that the College and its successors and assigns shall peaceably hold and enjoy the premises hereby leased during the said term without any interference or control of the City or any person claiming through or under it. That the City will at all times save and keep harmless and indemnified the College and its successors and assigns, and keep the premises hereby leased free and discharged of and from all taxes and assessments of every description which during the said term may be assessed or payable in respect of or charged upon the premises hereby leased or any part thereof.

That the City will within a reasonable time make and finish fit for use of good sound materials and in a proper and workmanlike manner the driveways of which the sites and dimensions are delineated on the said plan and so marked thereon; but at a cost not exceeding seventy-five thousand dollars, and that the said driveways during the said term shall be repaired and maintained in a proper and substantial manner free of all charge and expense to the College and its successors and assigns. That the City will during the said term provide and maintain a proper and sufficient police in and about the Arboretum and the said parts excepted from these presents and the said roads, avenues, and parkway for the preservation of order and good conduct and the observance of the rules hereinafter mentioned or provided for. That no public street or highway and no steam or horse railway, or construction for like purposes shall be laid out through or over any part of the Arnold Arboretum except in such places if any and in such manner as the Park Commissioners and the College

shall approve. That if the water supply from the sources within the Arnold Arboretum which the College has heretofore enjoyed for use in the said Arboretum shall at any time be cut off, interrupted, or impaired by the City or its assigns the City will immediately provide at its own charge and expense an equal or superior supply of water for the like uses. And that if the College, its successors or assigns shall be desirous of taking a renewed lease of the said premises for the further term of one thousand years from the expiration of the term hereby granted, the City or its assigns will upon request and at the expense of the College, its successors or assigns and upon its or their executing and delivering to the City or its assigns a counterpart thereof, forthwith execute and deliver to the College its successors, or assigns a renewed lease of the said premises for the further term of one thousand years at the same yearly rent and upon and subject to the same restrictions, reservations, covenants, and conditions as are herein contained including the present covenant and so on from time to time forever. And the College for itself and its successors and assigns covenants with the City that the College will not commence or prosecute any action, suit or other proceeding against the City for the enforcement or recovery of any damages or claim which the College may have or be entitled to against the City by reason of the said taking of the said Arboretum land by the City. And that the Arnold Arboretum shall at all reasonable times be open to the inspection of the public as a part of the said Park subject to the rules hereinafter mentioned or provided for. Provided always and it is hereby declared that the City shall be at liberty to erect and maintain suitable gateways for entrance thereto upon any of the said excepted parts and to maintain gates there. And that no pavilion, kiosk, urinal, museum, greenhouse, stable, shed or other building (except as above provided) shall be erected or maintained within the Arnold Arboretum, or in any of the said excepted parts or in any of the said driveways or parkways without the prior consent of the Park Commissioners and the College. Provided also and it is hereby declared and agreed that the use of the Arnold Arboretum and of the said excepted parts and of the said roads, avenues, and parkways by the City and its assigns and the College its successors and assigns and the public, shall be subject to the rules contained in the schedule hereto annexed and to such additional rules as have been or may from time to time be agreed upon between the Park Commissioners and the College. But any of the said rules may be altered or annulled by agreement between the Park Commissioners and the College."

By this arrangement it will be seen that while the city builds and maintains the driveways and gravel paths, and polices the place, all other management rests with the officers of Harvard University. The city furnishes no money toward the support of the Arboretum excepting for road maintenance and police duty,

and neither can the general treasury of Harvard University give assistance, the regular work of the Arboretum being dependent wholly upon the limited income from its own endowment or donations from interested persons. Under the arrangement with the city the Arboretum is forever free from liability to be taxed or assessed.

In July, 1883, the construction of the first roadway was begun by the city, and it was only during 1894 that the road system of the Arboretum, as planned by Mr. Olmsted, was completed. In the latter year an additional tract of about seventy acres, from the Bussey estate, comprising what is known as Peters' Hill, was given by the college to the uses of the Arboretum, and within the next three or four years the city extended the roadway around it.

While the limit of cost to the city of the roadways in the Arboretum was originally placed at seventy-five thousand dollars, about three hundred and seventy-five thousand dollars were actually expended before the work was done. For this expenditure we have about three and one-half miles of telford and macadamized roads, five and three-fourths miles of gravel walks and seven entrances with substantial gates. Delay in road making and grading necessarily involved delay in planting large areas of the ground, especially as the roads were generally laid out through the best available tracts for planting.

In addition to the roads and gravel paths constructed by the city, the Arboretum has in the last two or three years maintained numerous grass paths which are much appreciated as affording agreeable walks and facilitating access to different parts of the collection.

About one-fourth of the total area of the Arboretum (over two hundred and twenty-two acres) is not available for general planting purposes because of its swampy or rocky character or because already occupied by old indigenous trees which it is not desirable to remove. Some otherwise available land has also been exempt from planting in consideration of landscape effects. The most attractive natural feature in the Arboretum is a rocky conglomerate bluff or small hill, not much over one hundred feet high above the road at its base, the north slope of which is covered

with native hemlocks, the most mature of which may be a little over one hundred years old.

The first raising of plants in the Arboretum and the beginning of its collections was begun in 1872–1873, but on account of delays in finishing roads and grades by the city it was not possible to do any permanent planting of trees in their botanical groups or orders until the Spring of 1886. In that year much was accomplished, and, almost every year since, additions have been made in the direction of completing the collections.

The general sequence of planting originally adopted was that followed by Bentham and Hooker in their "Genera Plantarum," a system then in use by most botanists; but conditions of soil unfavorable to certain families of plants and other considerations made it necessary to depart from following any strict classification as indicated in books. In the original scheme of planting the trees it was intended to have a single specimen of a species with ample room for development on all sides, and also a group of the same species planted more or less closely together. Some modifications of this arrangement have been necessary, but in general it has been followed.

For convenience in comparative study, and also because many of the species would not do so well if within the shading and otherwise detrimental influence of the trees to which they are botanically most closely related, a collection of different species of shrubs is kept separate and is arranged in rows or beds according to their botanical affinities.

This collection is duplicated to some extent by the planting of larger groups of important species along some of the driveways and walks, and some of the shrubs which generally attain inconveniently large size have been removed from the general shrub collection and placed in groups by themselves.

The collection of shrubs and vines available for comparative examination by the public contains about twelve hundred species and varieties. The collection of lilacs, which has probably received more attention from the public than any other group, contains ten or twelve species and about a hundred and fifty named forms or varieties, most of which are variations of the common lilac, *Syringa vulgaris*.

The collection of trees already placed in permanent position represents between four hundred and five hundred species and about as many varieties and hybrids, the latter mostly of horticultural origin. Most of the important groups hardy in this climate are now well represented, although the collection of willows, poplars and alders is not yet satisfactory. In the nurseries, of course, are many species and varieties in process of development for planting out in due time.

In regard to the scope of the collection of living trees and shrubs, it may be said to be the aim to bring together all those wild or aboriginal species or varieties from any country which will endure our climate, even including those species liable to some injury by our hot summers or cold winters. Thus tests of hardiness or acclimatization must be unending. It is not possible to include all the horticultural or garden forms and hybrids of these species. That is something which must be left to horticultural schools and to the commercial nurseries; the Arboretum aiming to show and preserve the types from which the so-called improvements in gardens have been derived, and by introducing new species to offer further opportunities for experimenting and creating improved forms. A few of the peculiar or superior variations may be maintained in the Arboretum collections in order to show possibilities of differentiation within the species. Our severe climate conditions will always prevent the acquisition of such a large number of species as can be grown at Kew Gardens, but some species do better here.

As illustrating what may be done in the way of introducing new species of plants, our native hawthorns may be cited as an example, although perhaps an extreme one. Ten years ago not over twenty species were recognized as native in the United States and Canada. Within the past ten years, however, a great interest has been aroused in this genus (*Crataegus*) and nearly five hundred species have been described as distinct, about one hundred and seventy-five by Professor Sargent, while Mr. C. D. Beadle of Biltmore, and Mr. W. W. Ashe, also of North Carolina, have named about one hundred and fifty each. If the same standard of specific differences is followed there remain hundreds of species to be described. Of course many of these will prove

of botanical interest only, but there is no doubt that the study will result in introducing into cultivation some new American thorns of ornamental or even economic value. Fully fifteen hundred different lots of young living plants of this genus, many of course duplicates, are now under cultivation and observation in the nurseries of the Arboretum.

The acquisition of a collection of living plants in an institution like this implies wide activities and usefulness in the matter of dissemination or distribution of species as effected through the medium of exchanges or actual gifts.

In twenty-two years, from 1880 to 1902, the annual reports of the Director show that there were sent as exchanges from the Arboretum 214,650 plants and cuttings and 15,547 packages of seeds, and there were received 96,813 plants and cuttings and 6,307 packages of seeds. This takes no account of many thousands of cuttings or samples of seeds taken by visitors or special students and not recorded.

The bringing together of a large collection of living species, making them better known to the public by giving opportunity for study and comparison, by publication of descriptions and general information regarding them, and by actual distribution, is naturally the first stage in the organization and development of any such institution as the Arboretum. But its work for the public good should not be restricted within these lines, but should be made to cover many phases of the life histories of the plants, and into such branches the work is likely to be carried in years to come. The formation of a collection will inevitably bring out self-evident features as to hardiness or acclimatization, but much may be done in this line by studying the behavior of the plants under peculiar conditions. The rate of growth under such varying circumstances is worthy of observation, and the question of longevity follows as a matter of course.

We know little about many of the stages in the life histories of our trees and shrubs; the study of diseases and remedies may be said to be endless and with great opportunities for usefulness, while the fascinating field offered for research in heredity, variation, hybridization, etc., is almost limitless in its possibilities. In scores of experiment stations, agricultural colleges, and botanical

laboratories in this country experiments and researches in the lines indicated are now in progress, and with its foundation and facilities established and at hand the Arboretum should be able to take and hold a leading place in advanced scientific work in directions in which those in charge of its administration have heretofore been able to do little.

Mr. Jackson T. Dawson, well known as a propagator of plants, and superintendent of the Arboretum since its inception, or when the first seeds were planted, in 1872, has by artificial fertilization produced many interesting hybrids, some of which are well known among horticulturists. Among these hybrids may be mentioned numerous interesting roses, such as "Dawson," a hybrid of *Rosa multiflora* and Jacqueminot; "William Egan," a hybrid of *Rosa Wichuraiana* and Jacqueminot; "Arnold," a hybrid of *Rosa rugosa* and Jacqueminot; and "Farquhar," a hybrid of *Rosa Wichuraiana* and Crimson Rambler. Several of these have been awarded silver medals by the Massachusetts Horticultural Society. Other hybrids of roses and other plants might be mentioned, but an indication of the line of work and possibilities may be enough.

Through the agency of the Arboretum many interesting species of trees and shrubs have been first introduced into cultivation at home and in Europe, while many others already existing in gardens, especially in Europe, have been made better known and more popular in this country.

As indicating the line of original introductions which have now become well known and popular may be mentioned *Syringa Japonica*, *Syringa Pekinensis*, *Rosa multiflora*, *Berberis Thunbergii*, *Cercidiphyllum Japonicum*, several kinds of ornamental crab apples, and many other more or less well-known species of trees and shrubs from Japan and China, besides others not yet so widely distributed species which Professor Sargent was able to introduce by his trip to Japan in 1892. The Japanese trailing *Rosa Wichuraiana* was popularized in this country chiefly through the agency of the Arboretum, though previously known in Europe whence it was introduced into Franklin Park and the Arboretum at about the same time but under another name. While individuals or firms, like Veitch of England and Lemoine of France, may have done more in introducing new species to

cultivation or in producing hybrids the Arnold Arboretum can claim an important place in this work.

The formation of an herbarium and library is a necessary accompaniment of the living collection where scientific work is to be done, and in the thirty years since its beginning there has been brought together at the Arboretum an herbarium of woody plants not excelled by any in the country in this specialty and particularly rich in illustrating the arborescent flora of North America, due largely to the travels of the Director and to the collections of his correspondents in all parts of the country when gathering material and data for the Tenth Census report and the "Silva of North America". The work on the Tenth Census and the collections by government agents in connection with that undertaking contributed largely toward augmenting the herbarium, which received most of the material thus secured, and also toward making the publication of the "Silva" possible within a reasonable time and expense, although much additional exploration and collecting was necessary after the closing of the Census work and during the preparation of the fourteen volumes of the work on our North American trees.

Thus, although the Census work was under the auspices of the United States Government, and the "Silva" was the private enterprise of the Director of the Arboretum, the Arboretum benefited very greatly in its collections, and also in prestige, from the prosecution of both undertakings. During the same time, also, Mr. Morris K. Jesup, of New York, was having the magnificent collection of woods formed which is now in the American Museum of Natural History in that city. The bringing together of this collection was under the supervision of the Director of the Arnold Arboretum which again was benefited by great numbers of herbarium and other specimens secured by collectors when visiting and exploring little known or not easily accessible regions on Mr. Jesup's behalf and at his expense. These three enterprises, managed and completed under direction or by enterprise of the Director of the Arboretum, have been fortunate circumstances for our institution in regard to making its herbarium today one of the best and most complete in the country in illustrating the North American trees and shrubs, and in that respect

likely to be equalled or surpassed only by the National Herbarium at Washington. In this manner the building up of the herbarium has been greatly aided without involving a great outlay in engaging special collectors, otherwise its present completeness would have been impossible with the limited income which is available for the maintenance of the Arboretum. The herbarium is also rich in its collection of the arborescent flora of other countries, particularly Europe and Asia, the result of purchase in some instances, but more especially of extensive exchanges representing many thousands of specimens, and of two journeys to Asia made by Professor Sargent in which he secured large numbers of herbarium specimens and seeds of many species to be grown for the living collection.

The herbarium now contains between forty-five and fifty thousand sheets of mounted specimens. The library contains about ten thousand volumes and bound pamphlets. With the exception of a few hundred volumes the library is the gift of the Director of the Arboretum. While many of the books necessarily treat of general botany, they have been selected with special reference to dendrology and arboriculture, and in these subjects this library probably is unsurpassed by any in the country. Although there are in the United States botanical libraries containing at least two or three times the number of volumes to be found in the Arnold Arboretum, probably there is none which so fully represents the literature of the special department of botany in which the work of the Arboretum is concerned.

These treasures are given a home and protection in a practically fire-proof brick building given to the Arboretum in 1892 by Mr. H. Hollis Hunnewell. Besides furnishing accommodation for the library and herbarium, this building also contains the offices or work-rooms of the Director and assistants, and a collection of North American woods arranged for public inspection, the gift of Mr. Morris K. Jesup of New York.

Within this building is kept a card catalogue of the living plants, showing their history as to whether received as seeds, plants, cuttings, grafts, etc., from whom they came, and date of sowing or planting. Other records are kept of the trees when

set out in permanent position besides sets of maps or plans showing the location of each individual specimen plant. The problem of labelling these plants involves a good deal of labor, as frequent renewals are necessary. Among the shrubs the Latin names only are given, but at some future time the most appropriate common name may be added. When the trees get large enough large sheet-metal labels painted with Latin and common names and habitat are tacked to the trunks, copper tacks being used as they do not rust.

An important work now in progress at the Arboretum is the preparation of a bibliography of books and important articles relating to trees and woody plants. This is made possible through a special fund given by Miss A. A. Bradley, the income of which is to be used for some particular purpose or work in connection with dendrology. Already over eighty thousand cards have been prepared in this bibliography, which is a labor requiring many years to bring to a condition for publication.

From the Arboretum, as an institution, there has never been issued any bulletin or scientific publication. The results of studies by the Director or others connected with the institution have either been printed in government publications or various periodicals, or they have been issued privately by the Director, the most important works of this class being the "Silva of North America" and the irregular bulletin known as "Trees and Shrubs" of which three parts have appeared. A great deal of literature, dealing with much of the life and work of the Arboretum, appeared in "Garden and Forest," a weekly publication, issued in New York, but conducted by Professor Sargent. Ten volumes of this journal were issued between 1888 and 1898. These publications have assuredly been important factors in stimulating an interest in dendrology, arboriculture and forestry throughout the country and in bringing about a deeper appreciation of what is beautiful in the landscape in which trees and shrubs usually play a dominant part.

In future years as the work of the Arboretum broadens and it is better endowed it is hoped that the institution may have its own regular medium of publication in which those connected with it may print the results of work accomplished.

The regular income from endowment available for maintenance of the Arboretum in its early years was very small; in more recent years it has usually been between $7000 and $8000 a year, supplemented by gifts from friends and the sale of occasional surplus materials. Special efforts within the past two or three years have raised the endowment to over $300,000 so that the former regular income has been nearly doubled. From this income must be paid the salaries of the Director and assistants and wages of laborers, and all expenses incurred in care and administration.

As the first specimen trees were not planted until 1886 the Arboretum is yet young, and many more years will be required for its proper development and, as its advantages and beauties become more and more evident, it is hoped that a corresponding amount of help may be forthcoming to enable it to increase its efficiency and maintain its collections in the best possible condition. Since the organization of the Arboretum two men only have been continuously associated with it and working for it, and to them the condition of its living collections and its fame are largely due. These are Professor Charles S. Sargent, the Director, who, more than any one has brought wide public recognition to the institution and Mr. Jackson T. Dawson, the propagator and superintendent. Third in length of time connected with the Arboretum is Mr. Charles E. Faxon. Although not so long associated with it he has held the position of Assistant to the Director and in charge of the herbarium and museum for over twenty years, and if less known to the general public, his silent but effective scientific work is understood and appreciated by his friends and among scientists in every civilized community where the work of the Arnold Arboretum is known.

# MY EXPERIENCE AND OBSERVATIONS IN HORTICULTURE.

BY ADIN A. HIXON, SECRETARY OF THE WORCESTER COUNTY HORTICULTURAL SOCIETY. WORCESTER, MASS.

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Delivered before the Society, February 13, 1904.

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[As Mr. Hixon's lecture was not written an abstract only can be presented.]

I have advised the Massachusetts farmer to plant apple trees, but to my surprise one of your essayists last year recommended the same thing for the farmers of the state in general, but not for those east of Worcester. I cannot understand why this should be so. Look at the early history of apple culture in Boston.

Since the first settlement of this country, Boston has been in advance in agricultural and horticultural development and has made rapid progress in the science of pomology. In 1625 or 1626, Rev. William Blackstone had an orchard on the west slope of Beacon Hill. Governor Endicott established nurseries in Salem as early as 1628, and in 1648 sold 500 apple trees to William Trask for 250 acres of land. Governor Winthrop was very prominent in horticultural matters as early as 1630, having land on the Mystic River and a garden at the foot of School street and also another one at Governor's Island. The Colonial Legislature granted him the use of this island for a rental of two bushels of apples, one for the governor and one for the legislature.

In 1730 apples were for sale in the market from the Blackstone orchard. Hon. Paul Dudley sent to England in 1726 an account of the culture of fruit in Roxbury. He tells of trees there which were from six to ten feet and each bearing from thirty to thirty-eight bushels. He closed his letter by saying: "Our people of late years have run so much to orchards that a village of forty families near Boston made nearly three thousand barrels of cider;

another of two hundred families made nearly ten thousand barrels." Governor Hancock's grounds near the site of the present State House, Governor Hutchins's place at the North End, near Hanover and Fleet streets, Governor Bowdoin's and his son's place at Dorchester, and many other places in and around Boston were noted for their orchards. Roxbury was particularly noted for its apple culture and some farms there have produced from five hundred to one thousand barrels of Roxbury Russets. The orchards through Essex, Middlesex, and Norfolk counties testify to the adaptability of soil and climate for apple culture.

In the selection of apple trees for the development of an orchard I would, in many cases, advise going to a nursery and selecting trees regardless of names or variety, taking a thrifty tree with plenty of roots. These I would set out and the next year graft to such varieties as my market might demand. Last spring I visited an orchard about eight miles from Worcester, while looking for the San José scale. I found the orchard free from any insect or fungous troubles and showing very good care. The owner incidentally remarked, as he was showing me through the orchard, that this tree was an Astrachan, and so on, until he had mentioned six or eight names. I advised him to graft into Gravenstein, or some other sort that he could sell. "Why, Mr. Hixon," he answered, "I get a crop every year and get from $1.50 to $3 a barrel for my apples and sell them all." This man has established a reputation for Astrachans. He took me into the cellar under his barn, all nicely cemented, to show me a sweet apple of which he thought a great deal. He had about fifty bushels in a bin, and in the next bin about one hundred bushels of turnips. You could hardly tell one from the other by the taste.

I have in mind another lot of apples kept in the cellar of a horse stable where pigs were kept. Those apples were not fit to sell. Apples to keep their flavor must be kept in a fairly dry, cool and clean place, as near a freezing temperature as possible. Another man received $4.50 for 150 Astrachan apples. They did not quite fill a bushel box, so he put in ten more apples. He sold the balance of his Astrachans, 103 bushels, for $103. Another man, two years ago, disposed of his windfalls and sec-

onds in the nearby villages, keeping his best apples until March and April, when he sold them from $3.50 to $6 a barrel.

One of our large growers a year ago sold his apples in the fall, delivered in bulk to the cars, for from eighty cents to $1.25 a barrel. After some talk, I induced him to put some of his Baldwins and Sutton Beauties into cold storage. Late in March he took out two barrels and offered them to one of our fruit dealers, who offered him $2 a barrel at first. He objected to selling them for that and was given twenty-five cents more. He came to see me, not very well pleased with his venture and I told him that it was as important to sell well as to grow well. He went out and returned in about an hour, having sold all the apples he had, about forty barrels, for $3.75 a barrel.

The man or woman to succeed in the growing of fruit or in any other horticultural pursuit must have a love for the business. He must take an interest in it and be willing to work. Then he will find it profitable. A short time ago a man called on me with a letter from a New York nurseryman advising him not to plant any of the Japanese varieties of plums. The only varieties to plant, so he wrote, were the Grand Duke and Arch Duke. Our experience in the vicinity of Worcester is that the Japanese are hardier, less liable to insects and black knot, and they bear young. Some varieties, like the Abundance, may rot and they must be thinned out. Plums, especially the Japanese, are disposed to overbear.

Peaches do better on a new soil, land that has just been cut off, leaving a soil that is filled with vegetable matter. One grower with an orchard of 2500 trees bought trees in Georgia, Delaware, New Jersey, New York, Michigan, and Connecticut, in order to determine the liability of trees from the various sections to the peach yellows. He finds very little difference, after four years' comparison. An old book published in 1626, says: "There is one thing necessary to make your orchard better and more lasting, and it is so necessary that without it your orchard cannot last, and that is soiling or manuring, or in other words, putting on a lot of vegetable matter." I distribute from 1500 to 2000 scions, mostly of apples, every year. I am very particular that these shall be from trees that bear handsome fruit and good

crops. They must be from young and thrifty trees, or what I call good pedigree stock.

The development of plant growing under glass is wonderful. The sterilization of the soil for the destruction of worms; sub-irrigation: the growing of lettuce and tomatoes without water from the time of planting until after the crop is harvested; the forcing of cucumbers, and the fertilization of the blossoms by hand or by bees to insure a crop: the use of electricity; the forcing of mushrooms and of rhubarb in the dark; are all mysteries to the ignorant. In the case of rhubarb, for instance, we get a product which is a beautiful pink and very tender, at the same time brittle, much superior to that forced in any other way.

At a meeting of farmers interested in corn growing for canning, I was asked why seed corn deteriorated. Upon inquiry I found that these farmers always saved the largest and plumpest ears for seed, while I always select the ears with the deepest kernels and the most shrivelled, as that is an indication of their having the largest percentage of sugar. I have saved one variety for years and it has improved in that time by selection. I choose my best and earliest beets, turnips, parsnips, and carrots for seed planting, and if I find a tomato plant that is doing remarkably well on my land I save the tomatoes for seed.

Melon, cucumber and tomato seeds I scoop out of the fruit and put into a bowl, letting it stand until it ferments. Then I wash it and in that way save only the plump and clean seed. The saving of seed from plants that may have become acclimated I think is a decided advantage. In my trips among the farmers I find that many of them do not have gardens. A short time ago I stayed over night with a well-to-do farmer who apologized for the late breakfast with the explanation that he had to send to one of the neighbors for potatoes. Everyone who has land should have a garden, growing a variety of vegetables and small fruits, also various kinds of other fruits.

I have several acquaintances who have bought summer places with old and scraggly apple trees on them. I have advised trimming and grafting to various early varieties so that the family and visitors may have all the fruit that they desire during vacation. A good strawberry bed is a source of pleasure and profit, espe-

cially if you have children. One of my neighbors who is very fond of currants has them from the beginning of the season until into September.

Scientists estimate that nearly 50 per cent of fruit and vegetation is destroyed by insects and fungous growth. I sometimes think it is a wise provision of nature. The farmer complains about the prices he now receives and if the product were increased 100 per cent the prices would be still lower. What we want is a higher grade quality, instead of quantity. Perhaps it would be better illustrated by referring to the fecundity of plants. A plant of giant foxglove has 864 buds, or seed pods, each containing seed estimated by weight as 589,950 seeds. Calling this 500,000, and allowing that each plant was equally prolific for three years, they would produce 125,000,000,000 plants, which would be enough to cover 100 times the entire surface of the land of the globe, allowing eight plants to the square yard.

I receive many inquiries as to what a woman can do in horticulture. We have one woman, with several children, who is growing an acre of sweet peas. A school teacher who utilized a henhouse of one-half glass and one-half boards sold during the first year $10 worth of violets and the next year $70 worth. This was done without the use of heat. I know a woman in a neighboring city who did dressmaking for a living and had two girls to educate. Her husband was a man with a good education but with very little force. She was fond of flowers, although she had but a few minutes a day to work in the garden. A neighbor, noticing her industry, gave her a few old sashes which served as a beginning. In a few years she had several houses, her husband was her foreman, her girls were educated and her own health was very much improved.

A woman and two daughters in poor health, yet with a love for flowers and a small garden, brought in two vases of small roses to one of our exhibitions, receiving a gratuity of fifty cents. They were so much encouraged that they continued exhibiting, receiving during the first season $2.50, in the second $7, and during the third season $47.50 in premiums. They now have two greenhouses. I have in mind a little woman in one of the Western States who built a small house 12 by 30 feet for health and

pleasure, thirteen years ago. She now has twenty-nine houses and is a large grower of pinks and chrysanthemums. A woman who is interested and has a love for any of the horticultural divisions, beginning in a small way and not afraid of work, can succeed.

For a general fertilizer for garden and greenhouse work I would suggest: 2000 pounds of fine bone; 500 pounds of nitrate of soda; 400 pounds of muriate of potash; 300 pounds of sulphate of ammonia; which mix thoroughly. Some of our experimental stations say that the horticulturist cannot afford to use bone. In my own experience of twenty-five years I have never found a gardener that you could persuade to do without it. One of your most successful exhibitors of chrysanthemums says, "I use bone liberally in my compost heap, and when I prepare my beds in the houses I fork in another lot, and again the middle of the season." His exhibits are all first premium. On my own place we use it liberally inside and out and flowers grown with it show a decided improvement in petal and foliage.

I have great faith in lime, used with judgment. A garden that has been heavily dressed for years with stable manure that does not respond can be treated with a dressing of lime in the fall and ploughed in, then a light dressing in the spring and harrowed. An orchard that has green crops, if ploughed under sometimes will show mold, especially in the wet season; or any land that may be sour will be benefited. Greenhouse beds are benefited by an application once a year, early in the fall, also compost heaps that are full of worms.

A simple remedy, and effectual if used upon the first appearance of lice on house plants or any out-of-door plants, roses, sweet peas, nasturtiums, chrysanthemums, beans, melons, cucumbers, etc., is a strong solution of ivory soap. Two applications should be sufficient. I have had good success in treating San José scale with two pounds of whale-oil soap to one gallon of water and one pint of kerosene oil, applied to the trunk of the trees and branches with a paint brush as high up as my time and patience will allow, spraying the balance of the tree with the same solution.

# ORCHIDS AND THEIR CULTURE.

BY WILLIAM N. CRAIG, NORTH EASTON, MASS.

Delivered before the Society, February 20, 1904.

The advance in American horticulture during the past fifteen years has been truly remarkable. Especially striking has been the steady progress in matters pertaining to floriculture. While the rose, carnation, violet, and chrysanthemum are still the most widely cultivated and the most popular of our greenhouse flowers, it must be admitted that orchids, the aristocrats of the floral kingdom are yearly increasing in popularity and are being cultivated to a greater or less extent in ten times the number of establishments, more especially private ones, as compared with a decade ago. The successful cultivation of these interesting and beautiful plants is justly considered a difficult branch of the gardener's art; certainly when the value of a considerable collection containing many hundreds of species is considered, their successful management is, to say the least, a responsible undertaking.

Since early boyhood we have had a passionate love for these curious and lovely plants. It is true that they are sometimes refractory and cause worry and anxiety, but they give more solid pleasure than any other class of greenhouse plants where they succeed.

Orchids are not easy of propagation when compared with other plants, nor, on the other hand, are they short lived, except in rare cases. They are, however, interesting at all seasons to the grower, while their distinctive forms and colorings and wonderful lasting properties appeal to the everyday flower fancier.

We believe the idea, once so prevalent, about orchids being difficult subjects to grow and flower, is now tolerably well exploded. Some species certainly need lots of fussing over, but the major portion of the popular varieties are of comparatively easy culture, and no one who is able to grow roses or carnations

needs be afraid to handle orchids. Many kinds will succeed well in any ordinary greenhouse and we have seen, on more than one occasion, nicely flowered specimens grown in dwelling houses. Such sorts as *Dendrobium nobile*, *Cypripedium insigne*, *Lycaste Skinneri*, and *Cœlogyne cristata* will flower satisfactorily in an ordinary bay-window if frost is excluded, and a little judgment used in watering, and other essential details.

The general impression is that orchids are very costly and only to be secured by the wealthy. While it is true that their primary cost is higher than that of most other plants, they usually give their initial cost in flowers the first season. Especially is this true of the most showy and popular of our American orchids, the cattleyas. Nice flowering-sized plants of the major portion of our popular orchids can be had at from two to five dollars apiece. Of course, white cattleyas, yellow cypripediums, some of the choicer hybrids, and other unique forms may bring from $100 to $500 each, but the number of specimens changing hands at these prices is, however, very few in America.

We believe the late Mr. F. L. Ames when he paid $1000 for a white form of *Cattleya gigas* reached the maximum figure ever paid here.

As much as $500 or even more has been paid on many occasions, but the present-day tendency is to grow popular varieties of moderate cost, and allow European fanciers to hold the very valuable species; there are, of course, a few exceptions to this rule.

In Europe, especially in Great Britain, and in Belgium, France, and Germany there are an extraordinary number of private and commercial collections, and all choice novelties readily command remarkable prices. As much as one thousand guineas was recently paid for a small plant of *Odontoglossum crispum Pittianum* in England, and prices almost as high have been given for other choice forms of the same orchid.

When Baron Schroeder, in the early 80s paid $1825 for a tiny plant of *Cypripedium Stonei platyterium*, and another fancier gave $1700 for *Ærides Lawrenceanum*, it was believed that high-water mark in orchid prices had been reached; but as much as $500 has been paid for the pollen from a single odontoglossum

flower in the past year! Diamonds are cheap when compared with such prices.

We are now yearly getting less and less new species from the forests and more and more from the hybridist, and in the years to come we will be more dependent on the seedling raiser than on the forest collector. Orchids were successfully raised from seed in England and Ireland as far back as 1849, although it was not until 1860 that the Messrs. Veitch electrified the floral world by exhibiting the first seedling orchid before the Royal Horticultural Society of England. Today seedling raising is a hobby with many private growers and a big industry with some commercial ones. In some respects the seedling raising is being overdone; particularly is this true of the cypripediums, which are now so crossed and intercrossed that no living authority could name them correctly. As far back as 1870 some 2500 species of orchids were listed by Anderson in his "Practical Gardener," including all garden hybrids; there are probably nearly treble that number today.

Twenty-five years ago East Indian orchids were all the rage; now they are little seen. In America today, cattleyas are our most popular kind; in Europe odontoglossums are far in the lead. Our climate suits the one while the European coolness is to the liking of the other. It is unfortunate that our hot summers make odontoglossum culture difficult here, for they are the most chaste and beautiful of all orchids; but we have the satisfaction, on the other hand, thanks to our clear skies, of growing better cattleyas than can be produced in Europe. As showing the positions held by the leading genera in Europe, we may say that in 1903 the Royal Horticultural Society of England gave 33 first-class certificates (the highest award) and 73 awards of merit. Odontoglossums secured 34 of these awards, cattleyas 15, cypripediums 16, (only one being of the first class), lælio-cattleyas 14, dendrobiums 9, and all other orchids 18. Out of this number no less than 73 were garden hybrids, 8 natural hybrids from the forest, and only 25 natural forest species.

Seedling raising in America is making good progress; cattleyas, lælio-cattleyas, sophro-cattleyas, cypripediums, cymbidiums, zygopetalums, and other genera all having been successfully intercrossed. Some specially fine cattleyas have been raised in late years.

What we need here, more especially at the present time, is some seedling raiser who will grow large batches of such standard cattleyas as *Mossiæ*, *Trianæ*, *Mendelii*, and *labiata*, which are superior to all seedlings so far raised by intercrossing.

Such plants when of flowering size would readily bring much higher prices than dried forest specimens. Seedling raising, during the past season, has been successfully carried on in the open air in Oviedo, Florida, where an enthusiastic amateur has germinated numbers of cattleyas, lælio-cattleyas, and dendrobiums on the mossy trunks of magnolia trees protected by cheese-cloth. Temperatures of 28°–30° were frequently recorded where these seedlings were raised. They prove a most interesting experiment and open up great future possibilities.

Seedling raising under glass is attended with many obstacles and difficulties. Good fern fibre of a soft, spongy nature is suitable to sow the seeds on. They will also germinate if sown on the surface of the soil of growing orchid plants, or on calico cloth kept damp. Very great care in watering, ventilation and other details is necessary, and if all these prove successful flowering-size plants may be had in from two to ten years according to the genera worked upon. The present tendency of endeavoring to secure choice novelties is to be commended, but it will give us a bewildering lot of hybrids to remember. A restriction of the crossing to a few approved kinds, or to the securing of large lots of staple kinds is what we need in America.

In the matter of compost nothing is better for the general run of orchids than good osmunda fern fibre; sphagnum moss we are using less each year. Plants with growing moss on the surface of the pots in baskets look nice, but what swarms of snails are brought and what havoc they raise with flower spikes and tender roots!

Much has been written during the past few years on the culture of orchids in leaf mould in preference to fern root. We tried it quite extensively and liked it for a time, but it eventually proved a failure and we have abandoned it for good. Odontoglossums, miltonias, cattleyas, and dendrobiums all deteriorated in it under the most careful treatment, and we do not believe it will ever be of any service in America. Even in Europe opinions on its mer-

its are divided; some good growers will not use it, and it seems to be most successful when mixed with other ingredients.

Cattleyas are easily the most popular of orchids in America and, with the exception of *chrysotoxa*, which likes a higher temperature all the varieties named do well in a night temperature of 55°–60° in winter, or even a few degrees lower. They like abundance of ventilation on all possible occasions and succeed well in baskets, pans, or pots, either suspended from the roof or on staging within three feet of the glass.

To secure a supply during the whole year the following species should be grown: *C. Percivaliana*, *Trianæ*, *Schroederæ*, *Mossiæ*, *Mendelii*, *Skinneri*, *Warneri*, *gigas*, *chrysotoxa*, *Gaskelliana*, *Bowringiana*, and *labiata*. Closely allied to the cattleyas are the lælias; of these the most useful are *L. purpurata*, *elegans*, (each of these succeeds well with the cattleyas), *anceps* (some of the best forms are *Percivaliana*, *Stella*, *Schroederæ*, *Amesiana*, *Oweniana*, and *Hillii*), and *Jongheana*, the last named succeeding best in a night temperature of 50°–52° in winter. Other useful lælias requiring cooler treatment are *L. acuminata*, *harpophylla*, *flava*, and *Perrinii*. There are now numerous laeliocattleyas; they are as a rule, however, too high priced to be of general use.

Cypripediums are very useful orchids on private estates; their popularity is somewhat on the wane, but their wonderful lasting properties and diversity of forms will always make them necessary where any number of orchids are grown. For general purposes no varieties surpass *C. insigne* and its forms, and *Leeanum*. Other useful sorts are *C. villosum*, *Harrisianum*, *superbiens*, *œnanthum*, and *Sallierii aureum*. The dull-colored species are not serviceable for decorative purposes.

Dendrobiums are among the most lovely of all orchids. They like plenty of heat and moisture during the growing season, a thorough ripening of the bulbs in a light, sunny house, and the withholding of water until the flower nodes are well advanced. *D. nobile* is still the best species; some of its best forms are *Sanderiana*, *virginale*, *Ballianum*, *pulchellum*, *nobilius*, and *Backhouseana*. *D. Wardianum* is also a magnificent species. Other desirable sorts are *splendidissimum grandiflorum*, *Ainsworthii*,

*Phalænopsis Schroederianum*, *Formosum giganteum* and *fimbriatum*. Many of the scarce hybrids, such as *Juno*, *Wiganiæ*, *Euryalus*, *Cybele*, *Venus*, and *Schneiderianum* are very fine.

Cœlogynes, especially *C. cristata*, are beautiful and easily grown orchids for decorative purposes. The *Chatsworth* variety, *Lemoniana*, and *alba* are all worth growing if a collection is desired. Such varieties as *pandurata*, *Massangeana*, *tomentosa*, and *barbata* are worth growing. Calanthes, especially *C. Veitchii* with its long spikes of rosy-pink flowers, are indispensable winter-blooming orchids. They need a brisk, moist heat during the growing season, and should not be placed in a lower temperature than 55°, even when in bloom. Pot culture in fibrous loam and dried cow manure and applications of liquid manure during the growing season are necessary.

Oncidiums are less cultivated than a generation ago; the two most popular species, *varicosum Rogersii* and *ornithorhynchum* grow well in baskets, in pans hung well up to the light in an intermediate temperature.

Sphagnum moss should not be used as snails are especially fond of the flower spikes. Other useful oncidiums are *O. tigrinum*, *Marshallianum*, *incurvum*, and *crispum*.

Phalænopses need a warm, moist place, coming as they do from some of the hottest parts of the world; basket culture is best and too heavy shade is not desirable or the plants will not flower well, although they will make beautiful foliage. Excellent varieties are *P. Schilleriana*, *amabilis*, *Stuartiana*, *Sanderiana*, and *Vesta*.

Other East Indian orchids, including *Vanda*, *Aerides*, and *Saccolabium*, while containing many beautiful and graceful species, are not at present as popular as they were twenty-five years ago. *Vanda cærulea* succeeds well at the cold end of the cattleya house. Miltonias are very beautiful orchids especially the summer blooming *M. vexillaria*. A night temperature of 55° in winter with sun and dryness at root until root action commences, with frequent sponging and fumigation for thrips are essential to success. *M. Roezlii* and *M. phalænopsis* are other desirable species.

Odontoglossums are the most beautiful of all orchids and the most difficult to grow in our Eastern states. A marked improve-

ment has come over these the past two years, thanks, in the main, to the cool summers and to more sensible winter treatment.

A north house with roller blinds to shade from the sun from April to October, and free exposure to the sun the rest of the year to allow the bulbs and leaves to take on a reddish-brown hue is the culture we give them now. *O. crispum* is the finest of all odontoglossums. Other excellent sorts are *O. Pescatorei*, *Andersonianum*, *Hallii*, *luteo-purpureum*, *pulchellum majus*, *citrosmum*, *gloriosum*, and *triumphans*.

Masdevallias need similar treatment to odontoglossums; the most attractive species are *M. ignea*, *Harryana*, *Tovarensis*, *Veitchiana*, and *Lindeni*.

A few other useful orchids to grow are *Phaius grandifolius*, *Sophronitis grandiflora*, *Platyclinis glumacea*, *Cymbidium* in variety, *Zygopetalum MacKayi*, and *Epidendrum vitellinum majus*.

We do not believe that private estates in America, except in special cases, will form extensive orchid collections as in Great Britain. The tendency will be, rather, to grow batches of a limited number of species adapted for cut-flower purposes or for other decorative effects. Their culture from a commercial standpoint will not progress as will that of private establishments, but their popularity will increase in the years to come, and within ten years the number of growers of these beautiful flowers will be quadrupled. They will never be the flower of the masses like the rose, carnation, and violet, but will always be curious, interesting, beautiful, and bewitching to the ever increasing army of flower lovers.

# THE STUDY OF PARASITIC FUNGI IN THE UNITED STATES.

BY G. P. CLINTON, S. D., NEW HAVEN, CONN.

ANNUAL LECTURE UNDER THE JOHN LEWIS RUSSELL BEQUEST.

Read before the Society, February 27, 1904, with Stereopticon Illustrations.

It is now twelve years since the late Dr. James Ellis Humphrey, of the Massachusetts Agricultural Experiment Station, delivered the initial address before this society on "Plant Diseases and their Remedies." Dr. Humphrey presented his paper at a time when the study of fungi, in their economic aspect, was just fairly started in this country. Knowledge by the public was, of necessity, limited and so he wisely gave a paper dealing with the general nature of these plants. Since then the matter has been presented annually to the Society by different speakers, each dealing with it from a somewhat different point of view. The science is still young and, while the general knowledge by the public and the specific information of the investigator have both greatly increased, it still remains, I fear, a subject lacking in magnetic or sensational features with which to greatly enthuse an audience. I have thought that it might add still another point of view, if in my discussion today, I treated it somewhat from the historical side, dealing especially with its early history in this country and with the conditions that we find at present. At the same time, by aid of the lantern, I shall briefly indicate some of the troubles that have recently attracted attention, either because of their importance or because of new light gained of their life history. The specimens that are on exhibition, too, may give you some further idea of the great variety of these troubles of our cultivated plants.

The study of fungi in this country began less than one hundred years ago. Of course this is not strange since at that time the country was comparatively undeveloped and the government in its infancy. Turning to Europe, however, we find about the

same condition of affairs. Previous to the nineteenth century knowledge of fungi was confined almost entirely to the conspicuous forms, such as the toadstools. With the perfection of the microscope during the first quarter of the century there were thrown open for minute examination those numerous parasitic and saprophytic forms that previously had been seen only in their gross aspect or had not been seen at all. While the microscopic study was taken up in this country scarcely later than in Europe yet, because of our infancy, these preliminary investigations were very limited, practically the work of a single investigator.

In considering the history of the subject in the United States it seems to the writer that there have been three periods in its development. These, while not sharply marked off from each other, possess enough peculiarity to distinguish them in a general way. They may be briefly characterized as the periods of collection, of instruction, and of investigation.

The first period was characterized by the collector who merely listed the specimens he found or gave vague descriptions to those that proved to be new. In point of time this extended from 1812 to 1870, or from the return of Schweinitz to this country to the establishment at Harvard University of a department of Cryptogamic Botany. Louis von Schweinitz was a native Bavarian minister, who, after receiving his higher education in Germany, returned to this country in the interests of his particular sect. While I have little doubt that he was a useful servant in his accepted calling, I have no doubt whatever that he was an unusually good and active botanist. In Europe he had studied under the botanist, Albertini, and together they had published in 1805 a pioneer work on fungi. His ministerial labors in this country first took him to Salem, North Carolina. In 1818 he published the first important paper on American fungi. This was a list of the species, with a description of those new to science, that he had observed and collected in Carolina. Later his work took him to his native town of Bethlehem, Pennsylvania, where he continued his botanical studies on the flora of that region. In 1834 he published his most important treatise on "North American Fungi" which lists about three thousand species he had observed in the Carolinas and Pennsylvania. Schweinitz pub-

lished several important botanical papers dealing with other subjects, but these three were the most important treating of the fungi. When one takes into consideration the large amount of work that he had to perform as minister and teacher, one is surprised that he accomplished so much work in a botanical way. Fortunately Schweinitz's herbarium of fungi is still in existence, being in the hands of the Philadelphia Academy of Sciences.

The immediate successor to Schweinitz in time and importance was a Massachusetts man, also a minister, Moses Ashley Curtis, who was born at Stockbridge and educated at Williams. In 1830 he first went South as a tutor, to Wilmington, North Carolina. Like Schweinitz, he was a great lover of nature as well as of Nature's God, and so he soon began his study of the very interesting flora of this state and this was extended as his later ministerial labors took him to different places in it, and in South Carolina. Curtis was what your enthusiastic friends of the Boston Mycological Society might term "somewhat of a mycophagist." At least he gave us a long list of the edible mushrooms of that region and during the Civil War earnestly advocated their use by his friends as a substitute for meat. He was a correspondent of the Rev. M. J. Berkeley of England, at that time one of the most eminent mycologists. Many of his specimens were sent to the latter who published the lists and descriptions in his "Notices of North American Fungi" in Grevillia. The new species usually bear the authority "B. & C.," standing for Berkeley and Curtis. Curtis also published a number of articles on fungi in American periodicals but he did not confine his attention to fungi, for one of his most important works included the phaenogamic flora of his region. It might be of interest to note here that his valuable collection of fungi is now the property of the Cryptogamic Herbarium of Harvard.

Later workers in this early period were Frost of Vermont, interested chiefly in the fleshy fungi, Wright of Connecticut, Russell of Massachusetts, Lea of Ohio, and Ravenel of South Carolina. The latter's work is of special interest because he was the first to publish exsiccati of American fungi, issuing one set on the fungi of Carolina and a larger one on the fungi of North America.

From these preliminary statements you will readily observe that these early investigators were of a different type from the plant pathologists of today. In the first place they gained their living through other vocations. In the second, as botanists, they were usually almost equally interested in the flowering plants; in other words, they were more of the type of naturalists than of specialists. Finally, what they knew of fungi they had gained largely at first hand, through contact with nature, and not at any institution of learning. Their work was a work of love and of pleasure, unmixed with duty and necessity. Naturally the large and showy forms, such as the fleshy fungi, received most attention, while the economic species attracted less. At that time, however, there was not great need for the study of the parasites of the garden, field, or orchard. To them we are indebted for specimens, for lists showing distribution, and for meagre descriptions of new forms, but not for detailed studies in any direction, for they were pioneers.

Coming to the second period we find the type that characterizes it is that of the teacher. The professor and the pupil now come into prominence. Previous to 1870 the botany taught in our institutions of learning was the botany of flowering plants. Asa Gray recognizing the importance of the subject made provision at this time for instruction in the lower cryptogams at Harvard. Upon whom fell this task you are all well aware. Yet the professor before he could teach had to be taught! Concerning this Professor Farlow very modestly remarks, "It certainly now seems ridiculous that one who had only just finished his medical studies and knew nothing about cryptogams beyond what he had read in leisure moments or had picked up in the field should attempt to teach the subject. But the young are courageous, not to say audacious, if they are not learned, and, it must also be admitted, the demands of the students for information on the subject were easily satisfied at that time. After two years' experience as Professor Gray's assistant, the writer, finding it impossible to get even a passable knowledge of the subject in America, went to Europe and spent two years in study in Germany and France and on his return was appointed assistant Professor of Botany in Harvard University and stationed at the Bussey Institution, the Agricultural School of the University."

Harvard, however, was not alone in its provision for instruction in the cryptogams. About this time our state universities were coming into existence and their influence, as well, was felt in the shaping of new courses of study and the equipping of laboratories. Among the earliest to take up this work was the University of Illinois under the direction of Professor Burrill, still its head professor of botany. Professor Burrill was unable to go to Europe for his instruction but he had to send to England for books on the subject, and his first microscopes were practically homemade. The trials and difficulties of these early teachers, however, were easily offset by their enthusiasm. This educational movement has been one of slow but ever of sure and upward growth. Today we find not one or two but practically all of our colleges giving at least some instruction on fungi, and in many institutions there are special courses in plant pathology. This has opened numerous positions in various institutions in which a man may gain a livelihood by his specialty. While these positions often demand instruction or knowledge in various botanical subjects, they are as often filled by the man who has specialized with fungi as by one who has made any other subject his principal line of research. No longer is it necessary for the professor or the student to go abroad for study, though this is still done to some extent. We have several large herbaria, numerous well-equipped laboratories, excellent teachers and specialists, for the advanced student, in almost all phases of the subject. One even gets a taste of it in the high school.

Our botanists no sooner became instructors than they started in to be investigators as well. These investigations for the first time took on an economic character. Professor Farlow had scarcely become established at Bussey before he issued a paper on the potato rot. That was about thirty years ago and strange as it may seem botanists are still working on the same subject. This paper was followed by others by the same author on mildew of grape, black knot, etc. Burrill of Illinois began his studies on the fungous troubles of the Mississippi Valley and threw new light on the nature of blight in pear and apple. His discovery and proof of this as a bacterial trouble placed these organisms, for the first time, as agents of disease in plants. Later, Arthur, in New

York, and others took up the study of fungi and bacteria in their economic relations. Even the government botanists, who up to this time had been strict systematists of the phaenogamic type, began to treat somewhat of these lower forms.

The teacher has not wholly usurped this period for we still find examples of the older naturalists in the more modern systematists. Sometimes these have been persons gaining a livelihood in other directions, or sometimes occupying positions as curators of collections. These men have added to our knowledge of species and distribution and in some cases have given us systematic treatment of groups. The most prominent of these are Peck, the State Botanist of New York, and Ellis, the veteran mycologist of New Jersey. In a way both of these men have been educators though they have never served as instructors. Most of our new species have been described by them, and Ellis through his excellent sets of North American Fungi and Fungi Columbiani, embracing several thousand specimens, has aided many of us in our studies of fungi. In the earlier work of these men, M. A. Cooke, the successor of Berkeley in England, was of help.

As was stated earlier, however, this period was not characterized by the investigator but by the teacher. The professor found most of his time taken with his class room or in his preparation for it. He was not hired to investigate but to teach. He was not prohibited from investigating during his spare moments and vacations, neither was he especially encouraged to do so by the provision of adequate equipment.

It was in our third period of development that this investigating spirit came especially to the front. This last period extends from the founding of our Experiment Stations in 1887 to the present day. The Experiment Stations in most cases provide for a botanist on their staff, and usually his work as an investigator led him to deal more largely with fungi than with flowering plants. The Experiment Stations, too, provide facilities for research that were not enjoyed before. We now see a somewhat different situation from that of the preceding period, for here we have a demand for the investigator, and facilities offered him. True the botanist also often serves now as a teacher as well

as an investigator, but even then his duties as an instructor do not demand the time they did formerly.

The work of the stations has served to strengthen and multiply the research work of our colleges and universities. At the time these stations were established the government also began to extend its botanical work, especially in the line of vegetable pathology. As would naturally be expected, when investigators were first in demand but comparatively few could pass muster as first class, chiefly because of inexperience. Today the situation ought to be somewhat improved in this respect. The laboratories have been equipped, the libraries have been supplied with literature bearing on the subject, and the herbaria stocked with specimens. Men have been trained through their actual experiences and the universities are now adequately training others to take their places as needed. Lines of work have been laid out and general problems have been solved. Where then do we stand today and what is the outlook?

I think we can safely state that the most characteristic thing of today is the tendency to specialize. We can still occasionally find the old type of naturalist as an investigator, tucked away in some academy of science or local college, but he is a rare individual. The man who hopes to do something of permanent value must select a limited field in which to work and then bend his energies to study it minutely. He may be a general botanist or even naturalist, but he does not want to investigate in general botany or natural history. To succeed he ought to be a broad man working narrowly and deeply.

We have arrived at the point where we may also ask, With what have these specialists been working and how? There are other ways than the systematic way of studying fungi, though this is the oldest and to many of us the most enticing. So we are still collecting, labeling and placing specimens in our herbaria, and the results of our determinations are published as lists showing distribution. Botanists are still describing new species of fungi and it looks as if they would continue to do so for some time before the field is exhausted; even then they will go on, apparently, describing old ones as new. Not a few mycologists are studying the relationships of groups and publishing

the results of their studies in monographic form. In years past we have had papers by Burrill on the Uredineae and Erysipheae, Humphrey on the Saprolegniaceae, Peck on the Boleti, Setchell on Doassansia, Morgan on the Gasteromycetes. Later Ellis gave us a volume on the Pyrenomycetes and a paper on Phyllosticta; Harkness a memoir on the Fungi Hypogei, and Macbride a book on the Myxomycetes; Thaxter has been giving us for some time the results of his studies on the Laboulbenias, and American botanists have reason to feel proud of his work with these obscure fungi of insects. Atkinson, Earle, and Peck are dealing with the Agaricini, and McIlvane and others have given us popular books on this group. Griffiths has monographed the Sordariaceae. Salmon, of England, has extended, in his general monograph of the Erysipheae, the earlier work of Burrill. Olive has published papers on the Acrasieae. Holway and Arthur are publishing papers on the Uredineae, Burt is studying the lower Hymenomycetes, and Lloyd is at work on the Gasteromycetes. The writer hopes to add his mite with the Ustilagineae. Others are publishing papers dealing with miscellaneous groups. The whole field seems to be fairly well covered, especially as advanced students at Harvard and Columbia are constantly taking up small groups for critical investigation. Mention should be made here of state survey work being done by Bessey and Clements in Nebraska, MacMillan in Minnesota, Davis in Wisconsin, Kellerman in Ohio, Peck in New York, Jones in Vermont; and of previous work done by Harkness in California, Earle and Underwood and Atkinson in Alabama, Earle and Tracy in Mississippi, Riker in Maine, and Ellis in New Jersey. Surely Schweinitz would not be lonely if working in these days.

The morphological study of fungi is closely associated on the one hand with a systematic treatment and on the other with life history studies. We usually expect morphological studies from those who are working with a single species or with small groups and we expect such work to be illustrated with drawings more fully than when treated from any other point of view save the cytological. The writings of Thaxter, Setchell, Burt, Smith, and Atkinson have sometimes been of this nature.

The ideal method of studying single species of fungi is that

which emphasizes life history. The earlier work of Thaxter with the Gymnosporangia and potato scab, and Smith's paper on the wilt of cotton and his various papers on bacterial diseases of plants are models for those aiming to study from this point of view. Arthur and later Kellerman in their efforts to solve the relationships of the aecidial and teleutal stages of our rusts are working somewhat in this same field. Life-history study emphasizes the making of artificial cultures, if possible, to study the fungus in its various phases of development and to discover unknown stages. It also emphasizes the study of the fungus in nature to learn of its time and manner of appearance, its relation to environment, and its injury to the host if parasitic. With parasitic forms it involves infection experiments to determine how the fungus gains entrance to its host and their subsequent relationships. Experiment Station workers are more apt to work along this line than are others. It seems to the writer, however, that it is also the type of study best adapted for advanced students in our post-graduate schools. Professors there are too much inclined to suggest to the student a monographic treatment of some group. Perhaps the group may be small, yet a monographic treatment of any group of plants should be the result of the later years of one's work, since it involves a mature judgment and a general knowledge of all groups.

One of the most modern ways of studying fungi is through the eyes of the cytologist. Here are emphasized cell structure and its division, also the minutiae of fecundation. Those thus studying hope to solve general relationships and questions of evolution. Here, more strongly than in other lines, we feel the influence of Europe and especially of Germany. Most eminent in this domain stands Harper of Wisconsin, with Stevens, Davis, Swingle, Olive, and King contributing occasional papers.

Later, perhaps, botanists will be paying special attention to fungi from the ecological side of the question. The relation of fungi to season, especially as regards moisture, becomes evident even to a novice. This relationship has been emphasized most, so far, in the writings of Halsted. The physo-chemical side has been approached by Dean in his studies of the ferments secreted by certain moulds, and by Duggar and others in germination studies of spores in chemical solutions.

I have no doubt the line of study most interesting to you as horticulturists is that of the plant pathologist, especially of the one studying preventive treatments. I have not emphasized this phase of the subject before, partially because it has been the side repeatedly presented to you, and partially because the more I learn the more I realize that the terms parasite and saprophyte contrast more strongly in print than do the real things in nature; and so I am led to believe that any botanist gives aid to the science, even in its economic bearings, not so much from the point of view from which he works but by the thoroughness with which he works.

There have been four general lines followed in the treatment or prevention of fungous diseases. These are spraying, seed treatment, soil treatment, and plant breeding. A fifth possibly might be added which would include such general precautions as the selection of good seed or stock, proper pruning or picking to rid the plant of diseased members, rotation of crops to avoid accumulation of disease, and destruction of refuse to limit the breeding of saprophytic stages or the wintering of spore forms.

On the whole, spraying has proved to be the most general and efficient treatment. For the initiative in this work we are chiefly indebted to the Division of Vegetable Pathology of the United States Department of Agriculture. The early work of Scribner and the later and more extended work of Galloway and his assistants were incentives for subsequent experimentation in various Experiment Stations. First the grape rots and apple scab were dealt with and eventually effective treatments evolved. Since then spraying experiments have been tried for almost all of the important troubles and remedies found for not a few. Jones of Vermont with potato blight, Pierce and others with leaf curl of peach, and Halsted of New Jersey, Chester of Delaware, Selby of Ohio, and Stewart of New York, working with a great variety of troubles, have been prominent experimenters. Our horticultural friends have not been idle and we must not forget to mention the names of Goff, Taft, Green, and Beach among these. Out of all this experimentation a few general principles may be gathered. These briefly indicated are as follows: Bordeaux mixture has proved its supremacy as a fungicide; the value of

spraying resides in its being preventive rather than curative; success of prevention lies in starting before the appearance of disease, by repetition as needed during the period of infection, and in the thoroughness of the work; a final factor determining greater or less success, and one that cannot be controlled, is season. Spraying, apparently, has come to stay since it has become a common practice in the larger orchards, vineyards, and even in potato fields. Work for the experimenter along this line, however, offers little that is likely to prove startling in the way of new discoveries. Little is to be expected in new or better fungicides or in the methods of application. There is still room, however, for extending our knowledge of the best ways of treating many diseases.

The second method of prevention I mentioned was seed treatment. We got our hint of spraying from France; that of seed treatment came from Denmark. Kellerman and Swingle, while at the Kansas Experiment Station, were about the first to take up seed treatment. Their extensive and successful work with hot water and potassium sulphid for the prevention of our cereal smuts, especially that of oats, needs mention here. Later came Bolley's work, especially with potato scab and stinking smut of wheat, and to him we are chiefly indebted for corrosive sublimate and formalin as fungicides, and for the development of the sprinkling method in the treatment of smuts. Many other investigators have had a lesser share in extending our knowledge and in introducing the practice. Seed treatment proves of value only in those cases, chiefly with the smuts, in which the germs that secure infection are carried on the seed. To a lesser extent, perhaps, many troubles are started partially by spores adhering to the seed. Seed treatment, also, usually hastens germination. Perhaps the day will come when we shall generally select and treat our seed, fumigate our stock, and destroy our rubbish, but it is certainly not here now.

In the treatment of soil for prevention of disease perhaps Halsted of New Jersey has done more work than others. Soil treatment if it could be made practical and efficient would probably lessen many of our serious fungous troubles. But the difficulty lies in making it either efficient or practical. The earlier

work of Thaxter with onion smut has been more recently extended by Stewart of New York and Selby of Ohio, and yet, while considerable good land is lost to onion culture because infested with smut, the growers apparently do not go in for soil treatment very extensively. Halsted and others have shown the value of lime on land infested with club root of cabbage. Stone and Smith of this state have experimented with steam for sterilizing soil of greenhouses against stem-rot troubles. A Frenchman seems to be the latest in the field with experimental work with copper sulphate against rot of potato by the blight fungus, but this idea, apparently, has not yet been imported.

The fourth method employed to fight the ubiquitous fungus is plant selection or breeding. Nature, apparently, has often found this a successful way of warding off attacks; at least we find that there is a great difference in the susceptibility to attack in different varieties. Any greenhouse man knows that all varieties of carnations and chrysanthemums do not rust with the same readiness, though he no doubt often wishes this difference was more marked than it really is. Sometimes we can take advantage of these differences by selection of resistant varieties, but very often the most desirable varieties are those that become the worst infested. So far the selecting or breeding up fungus-resisting varieties has been chiefly the work of our government botanists. There are a number of difficulties to be encountered in a problem of this kind. In the first place it is evidently applicable only for troubles that are persistently injurious. Then it also means work that in most cases must run over a series of years before reliable results can be obtained. Where crossing is employed to breed up new varieties there is the danger of losing desirable qualities or of introducing those that are undesirable. Finally, failure is as likely to be the reward for one's efforts as success. Orton of the Department of Agriculture apparently accomplished desired results in obtaining a variety of cotton resistant to wilt, and Carlton has been at work for some time on the problem of finding desirable varieties of wheat that are rust proof. Stevens of South Carolina has lately taken up the task of finding a variety of tobacco that is resistant to a troublesome bacterial wilt.

During the past four or five years pathologists have had under

consideration a great variety of diseases of plants, and considerable progress has been made in clearing up life histories. Let us briefly consider the more prominent of these, taking them up under the great groups of classification.

*Slime molds.* Previous to the work of Toumey the club root of cabbage and allied plants was the only trouble we could trace to the slime molds. Toumey, while botanist at the Arizona Station, made an exhaustive study of the crown gall which is common on fruit trees, and as a result of his investigations discovered a new species of slime mold which he holds as the active agent of this trouble. It would be very desirable to have this study verified by other investigators and the question settled whether those similar troubles of the grape, raspberry, and apple are due to same or different organisms.

*The Bacteria.* We owe most of our recent knowledge of bacterial diseases of plants to the exact work of Erwin F. Smith of the Department of Agriculture. During recent years he has published investigations with a number of diseases, including blight of tomatoes, wilt of cucurbits, black rot of cabbage. Waite, also of the Department, has extended our knowledge of pear blight and preventive treatment for the same. Pammel of Iowa has made studies on one or two troubles. Stewart of New York has described bacterial diseases of corn and onion, and Jones of Vermont one of carrots and later a trouble similar to pear blight on the plum. Very recently Woods of the Department of Agriculture has had under investigation a bacterial disease of the carnation, and Stevens of South Carolina is at work with a bacterial wilt of tobacco.

*Thread fungi or Phycomycetes.* The downy mildews are about the only members of this class that have attracted attention as parasites in this country. We have no new troubles caused by these, but during the past two or three years two old ones have been unusually prevalent. Potato blight is receiving attention through prevention experiments at several of the stations in the northeastern United States. Last year you listened to a paper by Professor Jones of Vermont who has been most prominent in preventing this trouble by spraying experiments carried on for over ten years. The relation of the rot of the

tubers to the blight of the vines is a question not yet fully solved. In the experience of the writer these tuber rots are due chiefly to other organisms. The blight or downy mildew of the melon and cucumber is the second serious trouble and in some places it has practically stopped the raising of muskmelons. Spraying seems to have given favorable results with the cucumbers but scarcely so with the muskmelon. Thorough search, by the writer and others, has failed to bring to light the oospores, or winter spores, and so it is still a mystery how this fungus passes the winter in the north.

*Smuts or Ustilagineae.* The earlier work with the smuts has left little to be discovered by later investigators in the matter of preventive measures. Somewhat recently Arthur and Stuart and others have worked out in detail the life history of corn smut and have shown that it is exceptional in that it does not yield to seed treatment. The grain smut of sorghum has been prevented by the writer through seed treatment, and Stuart of Indiana has also similarly prevented the smut of millet. Recent work has brought forth formalin as one of the most convenient and efficient fungicides for this work. Recently sulphur and lime have been tried again by Stewart of New York and Selby of Ohio for soil treatment for onion smut. Anderson of South Carolina also has done some work with a new smut of rice imported from Japan.

*Rusts or Uredineae.* The recent economic work on the rusts has been confined chiefly to Carleton's studies of the cereal rusts. Halsted was the first to note the appearance of the asparagus rust in this country and he has worked considerably with this. Sirrine of New York, however, was the first to report beneficial results from spraying. He carried on extensive experiments with Resin-Bordeaux and designed a special spraying apparatus for use in large fields. From Arthur of Indiana we had a short bulletin on the chrysanthemum rust.

*Sac fungi or Ascomycetes.* Apple scab has recently been studied both in Europe and in this country and we now know, rather completely, its life history. The asco-spore stage was found to develop as a saprophyte on the fallen leaves. Bitter rot of apples, which has proved such a serious pest in the Mississippi

valley, has also been studied by a number of botanists. Artificial cultures made by the writer brought to light the asco-spore stage, and the investigations of Burrill, von Schrenk and Spaulding brought out other features in its life history. It was found that cankers were produced on the branches of the tree and through these the fungus was carried over the winter and produced infection of the fruit the next summer. Norton of Maryland has recently announced the discovery, on the buried mummies of peaches, of a *Sclerotinia* which proves to be the asco-spore stage of the common brown rot. Stone and Smith of Amherst some time ago found a similar stage for the common drop of greenhouse lettuce.

*Fungi imperfecti* are fungi having only summer spore stages so far as is actually known but which we have reason to suspect, in many cases, are connected with perfect forms. Those mentioned here will probably land eventually under the sac fungi. Stewart of New York has lately studied a *Coniothyrium* cane wilt of raspberries, which by girdling the stems with dead areas produces a wilt of the parts above. Bolley of North Dakota is studying a *Fusarium* wilt of the flax plant and has found seed treatment a preventive when planted on soil free from the fungus. Smith and Swingle of the Department of Agriculture have just issued an important paper treating of the *Fusarium* rot of potato. The writer holds this fungus and a bacterial soft rot to be the chief agents of the decay of the tubers, instead of the *Phytophthora*, or blight fungus. These *Fusarium* troubles are now known for a number of cultivated plants and future work must show whether they are all really distinct as botanists are inclined to believe. Pink rot was a very serious trouble last year in New York, coming on stored apples through the scabby spots. It was a subject investigated by both of the Experiment Stations of that state. Hedgcock of Mississippi Valley Laboratory of the Department of Agriculture, by cultural and infection experiments, has recently shown the identity of the *Phyllosticta* and the *Phoma* fungus occurring on the leaves and on the roots of the sugar beet. A *Botrytis* stem rot of the white globe onions has been extremely serious in Connecticut during the past two years and is under consideration by the writer. Sooty blotch

of the apple, so far studied only in a preliminary way by Sturgis, is a very common trouble of apples in New England and needs further attention. Black rot of apples has been studied by Paddock of New York and its occurrence on the twigs is known to be parasitic rather than saprophytic, as formerly supposed.

*Fleshy fungi or Hymenomycetes.* Ordinarily we do not count the fleshy fungi among our prominent fungous foes. Recent studies have added a few to this class. Duggar and Stewart of New York made a study of the sterile *Rhizoctonia* fungus that causes stem rot in a number of plants. Among those attacked is the potato. Later studies by Rolfs and Selby have shown this to be a serious trouble in New York, Colorado, and Ohio. Rolfs succeeded in holding it in check by seed treatment when planted on uninfested land. Through artificial cultures he also finally secured a spore stage that places this fungus under the genus *Corticium* of the lower Hymenomycetes. Wilcox, while at Oklahoma, made a study of the foot rot so troublesome in certain orchards in the middle west. He finds the cause in a new species of *Clytocybe.* Von Schrenk of the Agricultural Department has recently given us a couple of papers on the timber decays caused by certain species of the *Polyporei.* Popular accounts of the edible and poisonous fungi have been published from time to time by Farlow, Atkinson, Coville, Longyear, and others.

I have thus briefly outlined the work that has been done and is being done by mycologists in this country. As to the outlook for the future, I care not to predict. It seems, however, that we have no need to complain of lack of teachers or investigators. Facilities for investigation and especially for the publication of results are fairly adequate. We are turning out enough literature to satisfy even the most rabid. Apparently what we need most of all is more method in our work and higher standards in its execution.

### Discussion.

Hon. Aaron Low inquired what could be done to prevent the havoc caused by these fungous attacks.

Dr. Clinton replied that of all the remedies ever tried Bor-

deaux mixture stands ahead, but it is important to start early with it. For the potato blight and the melon wilt begin spraying the first part of July.

Samuel H. Warren remarked that in the case of black knot on plum trees he had been advised to cut off the diseased limbs and to graft in another variety. He had tried cutting the branches close to the trunk and found it effective and had got rid of the black knot on his trees.

The Lecturer said that the trouble in cutting off the limbs was that they were usually not cut close enough, otherwise some of the mycelium of the fungus would still be left to propagate the disease.

Varnum Frost spoke in favor of severe pruning as a remedy for black knot and it was the method he used. He said that the lecturer had told us some important things, but he had not told some other important things as, for example, the cause and cure of these diseases. There was one objection to Bordeaux mixture and that was its stickiness; it adheres like paint to melons and cucumbers and leaves stains on trees. He thought that the continual growing of crops, year after year, in the same soil brought on disease and rot. Potatoes will not do well in an old cultivated field, but plough up a piece of grass land and you will get a good potato crop. He did not have a very favorable opinion of the results of scientific investigations in agriculture.

J. Woodward Manning said he thought some exceptions should be taken to the remarks of Mr. Frost who had been a farmer and a good farmer for many years. The experiment station people are taking the only proper course to follow: that of studying into the life histories of these fungi and the cure will be found later.

Michael Sullivan called attention to the diseases of the onion and thought that the statement concerning the bad results of continuous cropping was true. These diseases appear to be dependent on climatic and soil conditions. He had noticed also that the white maggot was intermittent in its ravages, suddenly appearing and as suddenly disappearing. The effort of the market gardener has been to improve the old-fashioned Danvers onion by giving it a round or oval shape and to enlarge its size and we have succeeded in accomplishing it.

The Lecturer said that spraying was not always effective and that places where crops had been grown continuously were breeding places of disease. The season is also an important factor in these things and the weather conditions were responsible for the great development of fungous damage in vegetable growing. He advocated the clearing up and burning of the refuse in cultivated fields instead of leaving it on the ground through the winter thereby furnishing breeding material for the fungus spores which are capable of being carried through to another season by its aid.

Varnum Frost spoke on modern methods of farming which he said could not produce crops such as were raised forty years ago. He did not take any stock in the sterilization of the soil and gave an instance in which it had proved a failure, and in cases where it had been a success the first year, bad results came from it the second and third years following.

Warren W. Rawson replied that he could not hear sterilization denounced without rising and telling what it had done for him. He attributed his success to sterilization and since its introduction he had had very little trouble with the diseases that formerly cost him much loss and damage. It had been of the greatest value to him also as an exterminator of vermin and enabled him to grow good crops. When anyone says a word against sterilization he must speak in its defense. If some people do not have success with it their failure should not be charged to the process but to their own ignorance of the proper way of handling it.

Hon. Aaron Low remarked that we do not get in Massachusetts as great crops now as we did forty years ago. Then we produced large crops of tomatoes, cucumbers, potatoes, and melons. He remembered the large fields, acres in extent, of tomatoes and melons, but owing to the ravages of blights and rots it was now a difficult matter to raise a crop. In Hingham last year a certain field he knew of planted with melons proved a total failure; not a melon was grown on it.

Farmers will not now attempt to grow them by outdoor culture and they have to be raised under glass. It is now an absolute necessity as compared with former years to spray everything to protect from the blight in order to get a crop. The spread of blight affects tomatoes seriously but is most disastrous on melons and cucumbers.

William N. Craig spoke of the rot in the bulbs of iris to which the lecturer had referred and which had been attributed to too deep planting and excessive moisture. He had noted the rot in *Iris Germanica* and it had spread to *I. Hispanica* and *I. Anglica*; *I. Kæmpferi* also was affected. He asked if the lecturer had made any observations concerning this trouble and suggested that these blight diseases may be propagated in the seed, for this blight appeared in May last which was an abnormally dry month.

He had found that melons whether sprayed or unsprayed succumbed to disease, but there was no trouble in growing English melons in the hothouse.

The Lecturer said that fungous diseases were sometimes disseminated in the seed, either by spores on the surface or by the mycelium inside, out of reach. In a dry season the diseases would be very likely to disappear; in fact, the season is an important factor in fungous growth and it is hard to fight in damp weather. Regarding the iris he had made no special study of the rot affecting it, but it was known to be a bacterial disease.

Samuel H. Warren remarked that after listening pretty attentively to the discussion of this subject he thought there might be some doubt as to whether these diseases were a blessing or a curse to the growers. If there were nothing to prevent the growing of full crops there would be such an over supply that they could not realize anything for the products and the crops might as well be destroyed before raising as after they had gone to market.

# THE PROTECTION OF NATIVE PLANTS.

BY ROBERT TRACY JACKSON, CAMBRIDGE, MASS.

Read before the Society, March 5, 1904.

The effort to do something to protect and thus maintain our wild animals and plants instead of indiscriminately and even wantonly destroying them is seen in a number of ways. Our fish and game laws look to the preservation of game animals for their own sakes and in the interests of sportsmen. The Audubon Society attempts to check the destruction of our native birds, working on the humane and far-seeing principle of allowing the birds to live unmolested by man, for their own sakes, the pleasure we may gather from them, and the good they will do in the destruction of insect pests.

The widespread forestry movement has attained important standing as an effort to protect, improve and increase our forest areas. Here the objects are the production of timber as a crop, the preservation of the water supply and the checking of floods, both of which are helped materially by forested, as compared with unforested areas. The protection from denudation of hilly or mountainous country and the utilization and permanent increase in value of "waste land" are other important aspects of the forestry movement. The protection of forests for their intrinsic interest and the fostering of tree planting for the beautification of our country and suburban streets are other aims in view. Such work is actively pushed by the Massachusetts Forestry Association, the President of which is also our honored President.

With our great tract of country and wide and abundant distribution of animals and plants, it used to be felt that the supply was inexhaustible and therefore wantonly extravagant waste has occurred. That this view was erroneous is amply proved by the practical extermination of the buffalo and passenger pigeon. Wild turkeys were once abundant in this vicinity and might still

be in Massachusetts but for the incessant warfare waged upon them. White pine of commercial size is coming from constantly more remote regions, and the available supply of other timber trees is rapidly becoming less. Of smaller plants many have quite disappeared from this vicinity though they once grew here more or less abundantly, such as the mayflower, Arethusa, *Habenaria dilatata*, the maidenhair, and walking-fern, all, it is to be noted, plants of exceptional charm.

Turning to the consideration of the protection of plants, the larger plants or trees need protection and fostering care most emphatically, and such care is one of the large problems before the country. In the smallest plants, as moulds, bacteria, etc., the shoe is on the other foot, for in many cases, at least, it is we and not the plants that need protection. The plants to which I would call attention are the shrubs, herbaceous plants, and some annuals which by their charm of form or flower, or by their rarity in some cases, are likely to be eradicated or so reduced in numbers that they will no longer be a salient feature, at least in regions within easy access of our towns and cities. What causes the disappearance of plants? First and foremost are the axe and the plough. With the cutting down of forests, the spread of cultivated land and the extension of towns and cities, regions once populated by native animals and plants give way to the changed conditions. In the natural areas that are left in the vicinity of towns, or in more remote regions, the disappearance is of another kind, and here it seems some check may be operative.

Plants are unquestionably much reduced in number by the thoughtless picking in unreasonable quantities and the too often unnecessary pulling up by the roots, when the upper part, or flower, is really the only portion desired. Frequently the interest seems to be to gather as many as possible and the fact of rarity or exceptional beauty may act as a spur to induce the gathering of all that can be found. The principle that should be urged is, to gather in moderation, to always cut the stem, not tear it off, never to pull up the root unless for transplanting, and if there is reason to believe that the plant is rare, to leave it to increase its kind by seed and root, that in the future others may enjoy its presence.

With children it is particularly common to feel that the result of a successful gathering of wild flowers is to be measured by the quantity. A better principle to urge would be to instil into them as well as their elders the feeling that a plant as a living organism has a right to existence, and it is a pity to destroy its life, as they are more easily led to see is the case with an animal. Do not prevent the picking of flowers, for it is a perfectly natural and reasonable desire; simply urge moderation and regard for the rights of the plants to live, and for the future enjoyment of others.

Many flowers may be picked with impunity as freely as may be desired, such as asters, goldenrod, wild irises, most violets, roses, elders, barberries. These are all beautiful, common, and rapidly and freely reproduce their kind. An extremely good leaflet addressed to the flower-loving public and explaining how they can help to protect our native plants was issued by the Seal Harbor Village Improvement Society and later was published in Rhodora, the Journal of the New England Botanical Club. In order that it may reach another set of readers it is republished at the end of this paper.

After the axe and the plough, the worst enemy of our native plants is the commercial collector. He may collect the flowers, fruits, foliage, or the whole plant, and in view of the fact that every one gathered means just so much more money, it is natural that most serious inroads are made by this means. It is only when plants are sufficiently reduced in a given locality as to be too rare to pay for collecting, that the commercial collector is likely to stop of his own initiative. Owners of land could doubtless do much to check commercial collecting by posting notices of "No trespassing." A notice to the following effect would be more in the spirit of the present consideration, *Shooting, the picking of flowers, fruits, shrubs, trees, ferns, or mosses and the removal of plants is prohibited on these premises.* Similar notices printed on cotton cloth have been issued by the Botanical Club of Franklin Falls, N. H., and The Society for the Protection of Native Plants.

The legal penalty attached to the infringement of such rights of the owner of property is as follows. Revised Laws Chap. 208,

section 99. "Whoever wilfully cuts down or destroys timber or wood standing or growing on land of another . . . . or digs up or carries away . . . . roots, fruit or any plant there being, . . . . without the license of the owner thereof, shall be punished by imprisonment for not more than six months or by a fine of not more than five hundred dollars, . . . ." Laws to protect the sale of plants as the climbing-fern and mayflower have been enacted in Connecticut; but are not operative here.

The setting aside as reservations, of areas in which no collecting is allowed is most desirable. Such is seen in our parks, the reservation of the White Pines in Carlisle, through the Massachusetts Forestry Association, the reservation bearing *Rhododendron maximum*, in Fitzwilliam, N. H., through the generosity of Miss Mary L. Ware, and the attempt on foot to reserve the Sequoias or big trees of California.

Certain plants, especially those of commercial importance, need protection in a special degree and I would call attention to some of these. Our mountain laurel, or *Kalmia latifolia*, is one of the most beautiful of all our native shrubs, both when covered with its masses of white and pink blooms in early summer and for the rest of the year on account of its rich green foliage. Being evergreen, which very few of our northern shrubs are, it makes a striking feature in the winter landscape. Not found in other countries, mountain laurel is an essentially American plant and its striking beauty of flower and foliage renders it one of the choicest of known shrubs. Its attractions combined with lasting qualities induce a wholesale cutting of laurel to an alarming extent. It is collected extensively for decorative purposes twice in the year. In summer, when in bloom, it is cut, or too frequently torn off, for church and house decoration and for sale in the markets. As the flowers are firm and last well after cutting, it bears transportation and can therefore be handled on a truly commercial scale. In winter the cutting of laurel is much more extensive. It is then gathered in enormous quantities for the Christmas and other winter decorations of churches, ballrooms and private dwellings. In winter the cut foliage bears transportation so well that the quantity cut depends only on the demand and amount of material to be found in the woods and pastures.

In looking at long festoons of mountain laurel, it really is saddening to think of the quantity of blooms prevented for the ensuing summer and the numberless bushes mutilated to supply even one large decoration. When the total amount used as winter greens for a single city like Boston is considered, it seems that we must call a halt in this excessively extravagant cutting of laurel, or we shall have this exquisite plant reduced to relative rarity in all readily available localities. I know of two churches that refrained from using laurel when their attention was called to the matter, and if others would follow suit, the demand thereby being greatly reduced, danger would be averted. The various species of pine are equally beautiful and quite as effective as a winter decoration as laurel, and it seems that those engaged in raising and cutting pine and spruce would be only too glad to get a market for the actually wasted branches, for those are all that the decorator would want.

Holly is another plant that is gathered in extensive and dangerous quantities. Being of slow growth, and practically impossible to cultivate, at least on a commercial scale, the wild plants are the sole source of the Christmas supply brought to our large cities in such large quantities. One does not have to be very old to know it is a modern custom to supply holly, at least in quantities. The source being limited, it is believed that it cannot last long under such wantonly extravagant cutting. A friend of the writer literally has to guard his property on Cape Cod, Massachusetts, before Christmas to prevent his holly trees from being hacked to pieces. If protective legislation should be enacted to prohibit or check the sale of native plants, the holly and the mountain laurel need it perhaps more than any others that could be mentioned.

Ground pine is used in such quantities for winter decoration that it is comparatively scarce in regions where once abundant. The use of pine and spruce for green effects in winter, as above suggested, would go far to protect this humble and attractive plant.

Mayflower, or *Epigæa repens*, has been practically exterminated in some sections and is collected in inordinate quantities for sale. It seems that the only way this can be checked is through public sentiment in the matter of purchasing, by posting prohibitive

notices on land where it is collected, or by special legislation in this State as in Connecticut. Fringed gentians and Sabbatia are other plants the flowers of which are collected in such quantities for purposes of sale that seedage must be seriously interfered with. Both plants are annuals, or biennials, and a large crop of flowers must be left to develop seeds or the plants in a given locality will die out.

Our evergreen ferns, especially the christmas fern, *Aspidium acrostichoides* and the shield fern, *Aspidium spinulosum*, are collected in enormous quantities, kept in cold storage and used by the florists in winter with cut flowers. While the plants previously mentioned probably can never be grown on any extensive commercial scale to supply the market, these ferns could be, as they are as easily grown as many other crops and can be cultivated in places that are practically unavailable for most crops, namely wooded spots and places with northerly exposures.

Many native plants, like bloodroot, Podophyllum, solomon's seal, Veratrum, etc., are collected extensively for medicinal purposes; in these cases it is the root that is taken, necessarily destroying the plant. All of these plants are easily cultivated and could be grown on a commercial scale for the supply of the trade. In fact, similar plants are now grown in Europe for this demand.

There is strong prejudice in the minds of some against the cultivation in the garden of native plants, the feeling being that we are robbing our woods and fields and that such plants are out of place in a garden. If we stop a moment to think of the matter, a large part of our decorative cultivated plants, especially trees and shrubs, are the original species and wild somewhere, either in this or some other country. Obviously all plants cultivated are either the original species or varieties produced in cultivation or otherwise. The principle should be to collect from their native haunts only such plants as can be cultivated with reasonable assurance of success, and to propagate such plants by seed or division in nurseries rather than depending on collected material. Such nursery-grown plants are unquestionably better stock for cultivation. Our dealers in native plants, in the spirit of fairness to customers, as well as for protection of plants,

should indicate in their catalogues species that are difficult or practically impossible to grow. Such plants have no place in cultivation excepting in the hands of expert growers. Unquestionably the collectors of native plants for cultivation do a very serious damage in cleaning out localities of native species, which, if worthy of cultivation, should be propagated in nurseries.

Societies for the protection of native plants have been organized in numerous places, either independently or in connection with botanical clubs or village improvement societies. Such organizations are all valuable as an aid in spreading the spirit of protective care, rather than destructive waste, a care for the plants for their own welfare rather than looking at them merely as a source of ephemeral decoration, used often in inordinate quantities and soon thrown away.

In the year 1900 a few ladies in Boston inaugurated the Society for the Protection of Native Plants, with the expressed idea of trying to do something to check the commercial sale and the needless, often thoughtless, destruction of native plants. There are now over six hundred members and the society has affiliation with fifty-one schools in Massachusetts, as well as schools, libraries and village improvement societies in various parts of the country. The society publishes leaflets on the subject of protection which are distributed to members. The secretary is Miss Maria E. Carter, Boston Society of Natural History, Berkeley St., Boston, Mass.

Another society which is inaugurated for the protection of our native plants is The Wild Flower Preservation Society of America, with headquarters in Washington, D. C. Its members receive the Plant World, a journal of popular botany, in which there have appeared many interesting and practical articles on the protection of native plants. The address of the secretary is Mrs. N. L. Britton, New York Botanical Garden, Bronx Park, New York City.

# A LEAFLET OF THE SEAL HARBOR VILLAGE IMPROVEMENT SOCIETY.

[Reprinted from Rhodora, vol. 5, no. 58, October, 1903, p. 259–260.]

[It is well known that in the neighborhood of our summer resorts, many of our native plants are becoming less abundant every year, and some of them are in great danger of extermination. The number of plants gathered by plant lovers for various purposes is far greater than one would suppose. A year ago it was suggested to the Village Improvement Society at Seal Harbor, Maine, that something might be done to check unnecessary and careless gathering of the native plants in that part of Mount Desert Island. In consequence of this suggestion a committee was appointed to consider the matter. As one result of this action a circular was prepared by two members of the committee, Prof. Samuel F. Clarke and Mrs. Frances Theodora Parsons, which was widely distributed through the village. So many instances have been observed in which the recommendations of this circular have been adopted by the summer visitors that it seems well to give it a still wider circulation. It is therefore reprinted below with only a few unimportant omissions relating to local plants.— Ed.]

It is to the interest of every visitor to Mount Desert that its beautiful and characteristic plants be guarded from extermination. It is believed that everyone will be ready to aid in this work if once he, or she, fully realizes the danger with which these plants are now threatened.

It is not our wish to discourage unnecessarily the gathering of wild flowers and ferns for decorative purposes. We ask only that they be picked with care and discrimination. Such a flower, for example, as the blue-bell, which forms so beautiful a feature on the rocks along the shore, should always be cut with the scissors or a knife, rather than picked, to prevent its being uprooted, and even when cut, care should be taken to gather it only where it grows most abundantly, that no picturesque tuft be so completely done away with as to set no seeds for another year.

Where there is an especially fine plant or colony, or where there is a single plant or small colony, why not leave at least half the flowers for seed, in the one case giving nature a chance to perpetuate and develop the best, and in the other, helping nature to extend her work of beautifying our surroundings?

The pink lady-slipper, or moccasin flower, the purple fringed orchid, the Calopogon, Pogonia, and indeed all the orchids, should be cut (not picked) fairly high up the stem, leaving, whenever possible the lower leaves intact.

If these flowers are not to be exterminated they should not be gathered at all unless found growing very abundantly, and then only in moderation. Such fragile blossoms are more effective if not heavily massed, but arranged a few sprays by themselves.

From the purchase of the rarer flowers, especially of the purple-fringed orchid, by the roadside, we urge everyone to abstain. The country children who offer them for sale, are, innocently enough, the most dangerous enemies of all rare, salable flowers.

Ferns, also, should be picked with care, and not too freely, unless in spots, where they are unusually abundant. The same caution should be used against breaking branches from shrubs and trees in so rude a fashion as not only to cause a temporary disfigurement, but perhaps a permanent injury.

The hobble-bush, whose effective leaves and brilliant berries decorate gaily the woods of late summer is frequently a victim to careless picking.

The flowers growing in the immediate neighborhood of the roadside are a joy to the many. Is it too much to ask that these be left to delight the eyes of the passer-by, and that the flowers desired for decorative purposes be sought a few feet from the highway, or even from the trail? These roadside plants are constantly enjoyed by those who, by reason of age or some infirmity, could otherwise never see them. Were this once realized few would hesitate to take the trouble entailed by half a dozen extra steps.

We should not fail to add that many of the most effective flowers may be gathered away from the wayside without fear of doing any permanent injury. Daisies, buttercups, clover, wild roses, meadow-sweet, steeple-bush, asters, golden-rod, and other vigorous and abundantly growing plants will yield ample material for decoration and may be gathered almost with impunity.

To sum up we urge:

1st. Moderation. (Not gathering too many flowers of the same kind in one locality.)

2nd. Care. (The use of scissors or knife.)

3rd. Judgment. (Guarding of the roadside and conspicuous locations.)

4th. Occasional total abstinence. (In case of especially rare flowers.)

## Discussion.

Mrs. E. M. Gill asked if the Sabbatia could be grown in the garden.

The Lecturer replied that it is difficult to cultivate the Sabbatia, but he had seen it growing successfully in gardens. The best way is to gather the seed and raise the plants in that way.

William P. Rich remarked that he was interested in the sub-

ject of the lecture and that the cause of the destruction of the native flora was the building up and growth of the cities and towns, and that this was inevitable. He said that there was in the herbarium of the Society a collection of native plants made about the year 1850 in Roxbury, Dorchester, and Brookline, and that hardly any of them could be found there today. He had seen also, not long ago, a collection of plants of several hundred species made in the neighboring city of Chelsea, about the year 1840, not a single one of which could be found there now. The localities where they were collected are covered with paved streets and brick blocks.

It was thought by some of the members of the Society for the Protection of Native Plants that the work of our Committee on School Gardens and Native Plants had a tendency to help in the destruction of our flora by encouraging the children to collect and exhibit specimens at our exhibitions. But he thought this work of the Horticultural Society rather helped than otherwise in their protection, for it inspired in the children such an interest in the plants that it made them guardians rather than destroyers of them.

The main cause of the disappearance of our wild flowers besides those previously stated was their ruthless collection in large quantities for merely temporary gratification or for commercial purposes.

The botanist of the future in the vicinity of cities and towns would have a barren region in which to study the native plants He agreed with the lecturer that no great harm would come from encouraging in the children an interest in our wild flowers.

Jacob W. Manning said he knew of two carloads of mountain laurel being shipped from a New Hampshire town last fall.

Varnum Frost said that he had lived a good many years in the locality where he now resides and that he could not see that there was any great diminution in the wild plants. In fact the daisy, goldenrod, and ferns ought to be exterminated. The laurel was as prolific as a barberry bush; the more you cut it the better it comes up, and as for ferns, it was well-nigh impossible to exterminate them. Children gather ferns but they do not disturb the roots.

Michael Sullivan remarked that this lecture well illustrates the

first step in nature study and that it was well to encourage the children of the city to get out into the country. He came from a locality where, along the marshes, was a great abundance of wild flowers. Asparagus came originally from the seashore.

The Lecturer stated that it is not difficult to cultivate our native ferns in the usual garden soils. He had grown nearly all of the ferns native to New England and was surprised at the ease with which most of the species can be cultivated.

Varnum Frost called attention to what he considered a serious problem of today: the protection of birds. He said that birds contribute more to the race of mankind than anything else. They are the insect destroyers and the wholesale destruction of bird life should be stopped. With the exception of the English sparrow there is not one bird today where there used to be a hundred. In England you see many more birds than here.

Edward B. Wilder said he lived on the border of Franklin Park and that it was a great luxury for the children to visit this place and enjoy the common wild flowers that grew there. He believed it to be a source of refinement and culture.

George E. Davenport remarked that he would like to say one word about the influence on children of an interest in native plants. He had had some experience in this subject in connection with the school-garden movement in the Medford schools. He agreed with Mr. Rich that this interest of the children tended rather to protect than to destroy and, furthermore, since the initiation of this movement in the schools he had observed, and it had been noticed by others, that there had been less depredation on private gardens than formerly and the children had respected them because of their own interest in plants.

The question of how best to protect our native plants is one of widespread interest over the whole United States. We cannot stop the natural growth of civilization before which the plants must be crowded out, but we can do some things to protect those that remain.

One of the instructions of our School Garden and Native Plant Committee is to discourage the taking up of the roots of plants and also to instill into the minds of the children the idea of preserving the rarer species by leaving enough to go to seed and thus to insure them against unnecessary destruction.

# THE GLADIOLUS.

BY ARTHUR COWEE, BERLIN, NEW YORK.

Read before the Society, March 12, 1904.

Early in my experience with the gladiolus, being obliged to assume more important responsibilities in connection with other business interests, I was unable to develop the industry as I had planned; and in the manner in which I have been obliged to handle it, advancement has not been as rapid as anticipated until within the past five years, during which I have been able to devote to it more time and attention. I have been preëminently aided by a gentleman who has made a careful scientific study of the breeding of this flower for upwards of twenty years, Mr. H. H. Groff of Canada, a banker by profession, but at the same time the most successful and enthusiastic gladiolus hybridist of the world.

Until I saw his creations, I had been spending thousands of dollars upon foreign and domestic novelties to be again and again disappointed, not only in the quality of bloom, but in the weak vitality of the corm. I do not wish to be understood as representing that there are few excellent novelties, for there are many; they are being fast superceded, however, by the later hybrids, bred upon correct lines as to vitality of corm as well as beauty, size of flower, length of spike, etc.; a stock which rarely disappoints the purchaser. Some of your Boston seedsmen were among the first to realize this fact and have already reaped the benefit of an increased demand for these hybrids.

The "Florist's Exchange" of New York in its review of floricultural advancement for 1901 made this statement: "the most noted advancement along floricultural lines seen at the Pan American was that presented by Groff's Hybrids." I might add here that advancement has been more rapid in the direction of quality since that report.

While you will expect me to speak of the gladiolus in general from the growers' standpoint, I trust it may be pardoned if I dwell more upon those varieties or sections which are not only surprising the amateur, but are also a source of wonder and admiration to the professional gardener and grower as well, the speaker included.

The gladiolus in its wild state is a native of Central Europe, the Mediterranean region, Western Asia, and Africa. The headquarters of the genus, however, are in South Africa. The different species are too numerous to mention. Most of them produce very small flowers compared with the modern hybrids, and few are of much value to the successful hybridizer of today. Such varieties as *Gandavensis*, *Lemoine*, *Nanceianus*, and *Childsii* are too well known for me to dwell upon.

The best soil for the gladiolus is a sandy loam containing a slight trace of clay, but only enough to assist in retaining moisture. Fall preparation of the soil is preferable, but if neglected at that time, spring fertilizing should be done with thoroughly-rotted manure, and care should be exercised so that the bulbs do not come in contact with it. While the cultivation of the gladiolus in the garden is most simple, and it may be assumed by the amateur and distributor that the cultivation of the bulb for market is equally so, I can from experience assure you this is not so with the successful grower. Careful selection of soil best adapted to the different strains is most important; and the correct amount of proper food to use, shallow or deep cultivation, are among the many details which enable the grower to produce strong, healthy bulbs which are quite necessary to withstand the many different climatic conditions under which they must be planted.

The directions for the cultivation of a large acreage of gladioli may not be as interesting as some suggestions as to the best methods of garden culture, but I trust you will bear with me for a few moments while I tell you something about the care and labor required to plant, cultivate, and harvest seventy acres. The time for ploughing (in the fall) is necessarily short, for the ground where bulbs have been grown one year must be used, or new soil from which the crop of potatoes, corn, grass, or grain has been

removed. All stable and coarse fertilizers are worked into the soil at this time, while the chemical fertilizers are placed in the drills before planting. In the spring the ground is again loosened and drilled. The bulblets, three-eighths of an inch in diameter and upward, graded by screens, are placed in the drill, one and two inches apart according to the size, and two, three, and four across the row accordingly, and are then covered with earth. The large stock is planted in rows thirty-three inches apart, while the small cormels (black) are sowed in rows twelve inches apart. This labor requires about one hundred men and boys. Weeding in some seasons is a most expensive operation; the past season was one of the worst we have ever experienced in this regard. After the spikes begin to appear above the surface, horse cultivators are kept busy in the larger stock, and it is not unusual to see half a dozen wheel hoes in operation in our fields. After the buds begin to appear in the large stock all cultivation ceases.

During the blooming season the roguing and classifying is done mostly by girls as they have a better eye for colors, and such bloom as is not marketed (and this is but a very small proportion) is cut upon the ground as soon as possible after the first-opened flowers begin to fade. By doing this we prevent the formation of seed and throw this strength, which would otherwise be wasted, into the bulb.

At harvest time ploughing on either side of the rows loosens the earth and raises the bulbs sufficiently so that they are easily lifted by hand and the tops removed, after which the bulbs are spread upon the curing sheets upon which they remain for from one to three days. They are then placed in trays in the bulb houses where, until planting time, the temperature is kept as near forty degrees as possible.

The tedious work of removing the roots is done at leisure during the winter by those employed during the outdoor season who have been the most faithful and have shown a desire to become more proficient and valuable.

The grading, counting, and execution of orders as well as the arranging of planting stock are performed by the most experienced men, and with over ten thousand bushels, which was the harvest of 1903, this is in itself no small task.

While personally I have given little attention to hybridizing, my part of the work being the commercial end, still I have made many and extensive experiments with fertilizers to the end of producing an exceptionally strong and healthy bulb; and while I have been recently called to account for making the statement that I have succeeded in this direction, let me say that I am prepared to demonstrate that I am correct. Some of my experiments were made on the same principle by which the fruit grower produces wood growth with one kind of food, while with another, he produces more, larger, more beautiful, and more delicately flavored fruit. It is also a well-known fact that the farmer can and sometimes does grow most beautiful potato vines, to the detriment of his crop of potatoes, by the excessive use of improper food. Suffice it to say that I am more than gratified with the results secured by my efforts in this direction.

These questions are frequently asked: What are Groff's Hybrids? How do they differ from others? and, How do they compare with this or that variety? Answering this, let me say, that there is not a wild species (and there are about 150 of them) together with many cultivated varieties, with which Mr. Groff has not experimented. Many of these wild species were obtained from botanical explorers.

The early Groff's Hybrids were the results of crossing the species with the (then) best commercial types. The later hybrids are from species both wild and domestic (the latter of which are yet unnamed by the originator) crossed with the best novelties obtainable in the world (irrespective of price) as well as with new and stronger types produced by Mr. Groff. I can safely say that if you are familiar only with the ordinary gladiolus, or even if you have planted quite largely the high-priced European and American novelties, you have no idea of the grand surprises in store for you from the many thousand varieties contained in these new hybrids.

In some of these hybrids will be found traces of the blood of well-known species, such as *psittacinus*, which is one of the parents of the hybrid *Gandavensis*, the other parent being *cardinalis*, according to one authority, while another gives *oppositiflorus* as the other parent. Another, *Saundersii*, which combined

with a Lemoine hybrid produced the variety *Nanceianus*. Another, *purpureo auratus*, which with a Gandavensis hybrid gave us the Lemoine variety; and so one familiar with the different wild species might find here and there traces of the different bloods. Not so however with some of the later Groff's Hybrids, many of which are practically a race by themselves, the origin of whose parentage would baffle the most careful scientific searcher, and, indeed, would be quite a task for the originator to trace. These hybrids have been bred with the idea of furnishing quality equal and superior to the high-priced novelties, and at a cost which will permit the purchasing of quantity, rather than to restrict the number of varieties by classifying and naming, which on account of the extra expense in preparing, would necessitate prices that would prevent liberal purchases.

The old system of purchasing by name however seems to retain a strong hold in some sections of the country, and to meet this demand many fine varieties from these hybrids are under preparation for dissemination in this manner.

I wish to refer to one subject upon which I believe gladiolus purchasers in general are not well informed: that of unbloomed seedlings. In the first place the good reputation of the successful hybridizer is jeopardized by the dissemination of such stock even though by his skill the percentage of undesirable varieties may be small. Therefore he will first bloom upon his trial ground before offering.

While the seed produced by the promiscuous hybridizing of bees, butterflies and other pollen carrying insects may result in some fine creations, the percentage of such is small. The buyer of these seedlings is not aware of these facts and, expecting surprises, is, in the majority of cases, bound to be disappointed. Even though some excellent creations may be secured in this manner, the strength and vitality of such is not to be relied upon.

To illustrate this fact to summer visitors to my fields I yearly select some of the above-mentioned seed and develop the same for comparison.

During the past two seasons I have had the honor of escorting about my fields, accompanied by their guests, many visitors prom-

inent in the western part of your state, and while it is not customary to allow other than the laborers to pass through the rows, we sometimes make exceptions. Late last season, when the fields were nearly through blooming, my foreman and I started with four ladies through a block about 300 feet long, giving them permission to select any blooms they fancied, which we would cut for them. After they had secured all they could carry, one could not have cut a good-sized armful from the rows through which we had passed.

These ladies, too, were not strangers to gladiolus novelties. Imagine therefore, the unlimited task of naming a field of such stock, few of which according to the required standard would remain unnamed.

Last season I had the pleasure of shipping to several horticultural societies (yours among the number) blooms from my fields which were not to be entered for competition but simply to illustrate the endless number of types and varieties of high quality contained in these hybrids. Perhaps your experience with these blooms may have been similar to that of one of my valued customers, a member of one of your horticultural societies, who commented upon my exhibit in this manner: "Why is it that your flowers exhibited before our society are not as large as those I secured from the same stock purchased from you? Do you fertilize enough? Would it not be well for you to specially fertilize for exhibition purposes?" My reply to these queries was to the effect, that I would much prefer to place in the hands of the consumer a bulb which would produce results far beyond his expectation, rather than, by special fertilizing, to be enabled to exhibit at horticultural meetings blooms which it might not be the good fortune of the amateur to secure without employing the same method of feeding. I contend that it is perfectly legitimate for the amateur to employ any means at his command which will aid him to produce and exhibit superior flowers. The grower, however, deceives his patrons and the public in general when he exhibits specially prepared blooms without giving a detailed information as to how they were secured.

While there are many trials and disappointments in this, as

well as in the development of most industries, still it has its bright side. The most pleasing and satisfactory innovation which I have inaugurated is the weekly shipment of quantities of bloom to the fruit and flower missions in New York, for distribution among the sick and poor children of the East Side. Through the generosity of the American Express Co., who make a special rate for this work, I am enabled at a small cost to brighten the homes of these children whose eagerness for, and appreciation of these flowers must be seen to be best appreciated. Many of them, too, never see any flowers other than those distributed by these missions. Although the most of these missions are sectarian, my flowers are distributed irrespective of creed. I happened to be in New York the past season upon the occasion of one of these distributions, and I can assure you that I felt more than repaid for the expense of the entire season. I think at this time that there were not less than three hundred children, with many mothers who brought the smaller ones on account of their not being able to stand the press of such a crowd.

In conclusion let me say that Meadowvale Farm is not far distant from your city, and although the train service upon our little railroad is not of the best, it is possible for one with limited time to leave Boston one night, spend the entire day following at Berlin, returning to Boston the next morning in time for business. To the members and friends of your society I extend a most cordial invitation to visit my fields, which are at their best during the month of August, and I can assure you of at least a view of the largest field of this flower in existence, as well as some of the most beautiful mountain scenery of which Western Massachusetts and Eastern New York can boast.

## Discussion.

William N. Craig said he had been much interested in the lecture and referred to the statements made concerning the experiments with fertilizers; but the lecturer had not told us which kind he found best for gladiolus.

Mr. Cowee replied that he was often asked this question but he could not afford to tell what kind to use for the bulbs. He had

found out by experience that which was best suited for the purpose but it was necessary for him to keep it a secret as a business precaution against his competitors.

Robert T. Jackson inquired if there was any advantage in cutting bulbs.

To this the Lecturer replied that there was no benefit to be derived from cutting bulbs. If the bulb does not produce satisfactorily we throw it aside. His varieties increased fast enough without cutting. There was, however, one variety that he could do nothing with, the White Lady, a very beautiful white gladiolus, but of such weak vitality that the crop is often a failure. Mr. Groff had experienced the same difficulty in growing it and it has been stated that even the originators of the variety in Germany have trouble with it on account of its weak constitution. It is reported, however, to do much better in California.

Dr. Jackson inquired if it would be possible to grow the gladiolus from fall-planted bulbs.

The Lecturer answered that we never plant in the fall; that he had never found a hardy gladiolus; and that he did not believe there was such a thing. It was of course possible that a bulb especially protected might accidently live through the winter. If the bulbs are kept in a cool place they do not dry.

Mr. Craig asked what fertilizer is best for the flowers, if not for the bulbs.

The Lecturer said that he had found the best fertilizer to be equal parts of stable and cow manure, thoroughly rotted and well mixed with the soil, and in addition a light covering in the spring of a mixture of one part bone meal and three parts ashes. He had experimented with many chemical fertilizers and had found this formula best for the development of the flowers. He had been obliged, at times, to resort to the use of chemical fertilizers on account of the scarcity of stable manure and the expense of obtaining it from a distance.

William P. Rich, referring to the statement of the lecturer that his crop of bulbs last year was ten thousand bushels, asked if he was able to market that quantity. To this the Lecturer replied that in every previous year he had marketed his entire crop and he had determined to plant enough until he had a surplus. At present he was short of a good many sections.

Benjamin P. Ware asked how deep the bulbs should be planted.

The Lecturer answered, from two to four inches.

A person in the audience inquired how early in the season they should be planted.

The Lecturer stated that he made plantings as early as April 9 and again April 15 and found those planted at the latter date bloomed first.

Mr. Craig asked concerning the preparation of the soil for planting the bulbs.

The Lecturer stated that deep culture is desirable, about ten inches in depth, and the fertilizer well worked into the soil in the fall. In the spring the ground should be again thoroughly worked over. There is no objection to leaving the roots on the bulbs although he was accustomed to rub them off during the winter.

A question was asked concerning the diseases of the gladiolus which the Lecturer answered by stating that he did not know much of anything about that for he did not have any diseased plants. As soon as any such symptoms appeared the sickly specimens were thrown out. Sometimes spots appear on the leaves but a change of soil will rid one of them. He did not grow his plants more than two years in the same ground. With the exception of the White Lady gladiolus previously mentioned he had not been troubled by any failure of crops through disease.

Another question proposed was, When should the bulbs be taken up out of the ground?

The Lecturer replied that they should be taken up as soon as the foliage had turned a little brown, rather than to wait until the spike was thoroughly dry and that the spike should be removed immediately after digging.

Mr. Craig asked as to the correct pronunciation of the word "gladiolus" for he observed that the lecturer pronounced it in two different ways — "gladī'olus" and "gladiō'lus."

The Lecturer replied that the word is variously pronounced but "gladī'olus" — accent on the second syllable — is the pronunciation given by Webster. His youthful habit of pronouncing it "gladiō'lus" — accent on the third syllable — sometimes got the better of him. Still another form was "glad'iolus" — accent on

the first syllable — which was sometimes heard and is the way it is pronounced by Mr. Groff.

On motion of Mr. Spooner a vote of thanks was given to Mr. Cowee for his interesting paper.

# THE PEONY.

BY GEORGE C. WATSON, PHILADELPHIA.

Read before the Society, April 2, 1904.

By way of introduction a few words are necessary to explain why an amateur like myself should presume to appear before this Society to speak on the subject of peonies. I am not a peony expert but merely a lover of this king of border flowers; an onlooker whose delight and wonder at the development of what may be termed the modern peony is unbounded and who takes an equal delight in trying to impart some of this enthusiasm to others.

Although my official connection with the Peony Association which had its inception at the Asheville Convention of the Society of American Florists, in 1902, might lead some of you to expect that I would say something about the nomenclature of the peony, I may state that the matter is only in its initiatory stage and it will take a long time before definite results can be obtained. A nucleus of a test collection has been formed in Fairmount Park and this will be increased from time to time. The number of varieties planted is small as yet and the effort can only be termed a step in the right direction so far.

But the matter of nomenclature, though important, need not hinder efforts to still further popularize the modern peony by exhibitions, by lectures, by articles in the horticultural press, or by any other means that may suggest themselves. For although the past ten or fifteen years have witnessed a great increase in public favor, it is as yet nothing to what the merits of the subject entitle it. Mention a peony to the average owner of a garden and nine times out of ten the flower that occurs to his mind is the old double red of our grandmother's garden; very good in its way but without fragrance, or size, or form, and not to be compared with the gorgeous, many colored, fragrant masses of bloom which go to the make up of the modern varieties.

One reason why more peonies are not grown is the comparative slowness of propagation as compared with roses and other popular flowers. These latter can be quickly raised from cuttings but we have to depend on root division for propagating the desirable varieties of peonies and good pieces with two or three eyes cost a great deal more to produce than a young rose plant. As for new varieties these are raised from seed and four or five years must elapse before they bloom. From a commercial standpoint the peony is emphatically not the plant for small capital and quick returns. It takes money, time and patience to get results; but when the results are obtained, there is great reward for the efforts expended.

In a wild state the peony family consists of some twenty-five distinct species. Baker's monograph of 1884 enumerates 22; that of R. Irwin Lynch in 1890 gives 25. The latter authority was of the opinion that our modern garden forms originated mostly from two of these species namely, *albiflora*, a native of Siberia, and the European *officinalis*; some few are traceable to *peregrina* a native of Southern Europe, two or three to *tenuifolia* a Russian species, and considerable influence is also attributed to two double forms imported from China — *Reevesi* and *Pottsi*. These last two are termed "hybrids of *Sinensis*" by Verdier of Paris who achieved prominence as a disseminator of new peonies about 1838. According to Mr. Paul the first raisers were M. Lemon *père* of the Porte St. Denis, Paris, 1824; M. Jacques, gardener to King Louis Philippe at Neuilly, 1824, whose collection passed on to his nephew M. Victor Verdier; and M. Guerin, Paris, 1837. M. Lemoine of Nancy and M. Keteleer of Paris were also prominent raisers of peonies from the beginning of their culture. Lemoine refers to the rich collection of the Prince de Salm Dyck at Soulange Bodin near Paris which he saw in 1842. A most distinguished French raiser was M. Calot of Douai who inherited the Comte de Cussy collection and continued the collection and production of seedlings to 1872 when the collection passed into the hands of M. Crousse of Nancy who did much to bring the standard up to the high mark our collections have now attained. M. Buyck the raiser of the celebrated Festiva Maxima and M. Parmentier of

Enghien were among the prominent workers on the peony in Belgium in the early days. In England little had been done with the peony up to 1850 when Salter began his collection. Kelway started hybridizing in 1864 and his energy and long-continued enterprise in raising and distributing improved forms have done much to popularize the peony. In 1884 Kelway catalogued 250 varieties; of these 63 were new single and 41 new double of their own raising. Their exhibit at the Royal Horticultural Society's Exhibition that year, according to Richard Dean, "greatly astonished old-fashioned gardeners who could look back to the time when only about twenty species and varieties were known in cultivation." Barr, Hooper, Paul, and others were also prominent among the English horticulturists who did good work on the peony.

In America, so far as I have been able to learn, there are but few names prominent as raisers of new varieties. Among the first of whom I find mention is that of H. A. Terry of Iowa. Mr. Terry writes me that he commenced growing peonies in 1858, getting his first stock, 30 varieties, from Prince of Flushing, which included Humei, Pottsi, Reevesi, Fragrans, Count of Paris, Festiva Maxima, Lutetiana, Edulis Superba, Plenissima Rosea, Queen Victoria, etc. Most of these produced seed freely and Mr. Terry soon had thousands of seedlings, but he says that generally not five in a thousand would be worth propagating and often not one. He has now a fine collection of some 200 choice varieties of his own raising. Mr. Terry is of the opinion that Festiva Maxima is still the best all round white, and for pink he thinks there is none much better than Plenissima Rosea. Grover Cleveland is his best dark crimson. Of fancy colored varieties he names Carrie, Esther, La Reine, Mrs. Pleas, Maude Hutchinson, Stephania, and Variegata.

"I am now in my 78th year," says Mr. Terry, "and do not know how long I shall continue to grow peonies, but I want to be surrounded with them as long as I live. They are like my children, very dear to me."

I have heard Morning Star one of his seedlings highly spoken of. It has light, delicate, outer petals and the inner ones radiate like star rays from the center. It is said to be a most lovely, fra-

grant, and winsome flower. His Mrs. Harrison is also a fine one with deep red outer petals and delicate pink center.

Mrs. Sarah E. Pleas of Indiana has also been an ardent worker for many years in raising new varieties. Her Golden Wedding variety is unique and beautiful.

Your own John Richardson was also a noted raiser of new varieties. I have no historical data concerning his work, but presume it must have been done during the 60's and 70's; the records of your society would tell. His variety Rubra Superba is considered by many to rank in its color with the celebrated Festiva Maxima. One of its most valuable characteristics from a commercial standpoint is its shipping and keeping qualities. A large shipper of peony blooms to the Chicago market, who handled last season over 300,000 peonies of the best varieties of the day, states that Rubra Superba is the best shipper and keeper of all. Richardson's Perfection, Dorchester, Grandiflora, and Norfolk are also very fine varieties. Hovey, Ellwanger, Peterson, Barry, Pentland, Thurlow, are also among the American names that should be added to the roll of honor as enthusiasts if not actual raisers of new varieties and there are doubtless others that I do not think of at the moment. Mr. Harrison and Mr. Rosenfield are doing splendid work in the West in popularizing the thoroughbred peony. All through the great West and Northwest the people are becoming enthusiasts and are finding the peony a much more satisfactory plant than the rose. Mr. Rosenfield of Nebraska has been quite successful in raising American seedlings. One of his best is Blushing Maid, a light blush, late and very fragrant.

Around Chicago quite a number of large peony plantations have been formed for the sale of the cut blooms alone and they are reported as profitable. The peony is a good keeper when cut at the proper stage in the bud, and they not only ship well long distances but can be kept in cold storage for weeks, and will open up beautifully when wanted, with the colors more perfect and delicate than if they had been allowed to open on the plant.

As to varieties, I am frequently asked the embarrassing question as to which are the best twenty-five or fifty out of the hundreds of fine new kinds in commerce. I have tried it, on a few occa-

sions, and each time I almost wished I had not. If, for instance, I should name Magnifica some one will ask, Which Magnifica? There are at least two of that name: and if I name Princess of Wales there are three of them, and so with many more. I used to make copious notes of the exhibits at your Boston shows including the grand collection of Mr. Thurlow. I have visited good collections when in flower and spent many delightful hours with note book in hand, and I have grown a few good ones myself.

For Massachusetts the early flowering kinds, *tenuifolia plena*, and the three colors of *officinalis* are indispensable as they flower in May and are welcome even if they are not large or fragrant. Among the June flowering I think I am fairly safe in mentioning the following:

*Whites.*— Duke of Wellington, Festiva Maxima, La Tulipe, La Vestale, Marie Lemoine, Duchess de Nemours, Neomie Demay, Alice Julvecourt, Grandiflora Nivea, Baroness Schroeder, Helene Leslie, Madame Dupont, Viscountess Folkestone, Triomphe de Paris.

*Pinks.* — Belle Douaissiene, Caroline Allain, Delicatissima, Duchess of Sutherland, Eugene Verdier, Faust, General Bedeau, Leonie, Madame Breon, Lady Bramwell, Madame de Vatry, Paganini, Princess May, Humei Carnea, Rosea Grandiflora, Alexandre Dumas, Glorie de Patrie, Josephine Parmentier, Reine des Fleurs, Washington.

*Deep rose varieties.* — Dr. Bretoneau, Abel de Pujol, Etendard du Grand Homme, John Fraser, Sir Charles Dilke.

*Deep crimson varieties.*— Rubra Superba, Marshall MacMahon, Souvenir d'Auguste Miellez, Francois Ortegal, Rubra Triumphans, Delachei, Louis Van Houtte.

The foregoing fifty are all medium-priced varieties that can be purchased from twenty-five cents to about $1.00 each. Many of the extra fine new ones have not been included on account of their high price. Very few ordinary planters care to pay $2.50, $3.50, or $5.00 a root for the very latest, most of them preferring to wait until the prices have become more reasonable before adding them to their collections.

In regard to the culture of the peony, I prefer to leave that to more experienced and competent hands than my own. In a

general way the details are known to all of you or can readily be found in your library. If I have been able to interest you in these rambling notes on this magnificent flower which is now commencing to again take its true place in our gardens, I am happy and hope you will immediately resolve to plant a worthy collection of the grand modern varieties.

### Discussion.

Mrs. E. M. Gill asked if anything could be done in the culture of peonies tending towards increasing the erectness and firmness of the stem.

The Lecturer replied that some improvement in these respects could be made by culture, but that there were weak-growing and strong-growing varieties.

Dr. Horatio C. Meriam said that he was much interested in the subject of the lecture and in its literature and that the speaker had thrown much light upon it. Mr. Terry's work alluded to by the essayist is a good illustration of how much an isolated person can do without the advantages of exhibitions and opportunities for comparison. He thought Mr. Terry had named and introduced too many varieties and that few of his introductions were of real value. Concerning the propagation of the peony Dr. Meriam said he had recently heard of a method that promises to be helpful. This is to place over the plant in the spring a frame twelve or fifteen inches high, without bottom or top. This frame should be filled with good soil and the plant allowed to grow up through it. In the fall the frame will be found to be filled with roots which may be divided according to the number of eyes. If this method is reliable one of its advantages will be that valuable plants will not have to be lifted to propagate them. He intended to make a trial of this plan the coming season.

He found it a difficult matter to get plants true to name and that would remain true to color or retain the slight variation of shade that distinguished them when first introduced. The climate in America is trying to some of the European varieties. Here the sun is hard and drying, while in England it is tempered by cloud, fog and a soft atmosphere. In England they can grow

pansies from cuttings but he had never been able to carry along a good plant. He had learned years since that the pansies that succeeded best were from seeds obtained from the Continent with its more open sky, the plants being subjected to less changed conditions of growth. He had a large collection of *Iris pallida*. Two years ago it was rainy and dull at the time of flowering and the flowers were as beautiful as described in the catalogues; but last season it was hot and dry at the flowering season and they showed but slight variation; in fact, looked nearly all alike. With the beauty brought out by shadows we are familiar, and the English sky does this to a notable degree, so that it is not to be wondered at that we do not find all the beauty that the catalogues lead us to expect. Many new varieties are being introduced into England that will have no advantage in America over the older sorts, if given the same exposure and culture.

By far the most valuable work on peonies in America was that of John Richardson, alluded to by the essayist, and he produced varieties which at the time were not surpassed by any in the world.

Joseph S. Chase inquired as to the proper time for dividing old roots.

The Lecturer replied that it was done usually in September.

Mr. Chase stated that as a matter of experiment he began dividing them last year the 27th of July without noticing any disadvantage.

Mrs. Gill said the roots could be safely divided immediately after flowering.

Robert T. Jackson spoke of the life and work of John Richardson with whom he was intimately acquainted. His remarks suggested the desirability of putting on record a detailed account of Mr. Richardson's horticultural work. Such a paper has been prepared by Mr. Jackson and is included in the present number of the Transactions.

Hon. Aaron Low spoke of an old peony bush in the town of Essex, Massachusetts, which produced in profusion every year an old-fashioned flower. Countless plants had been taken from it and distributed throughout the surrounding country. It was thought to be more than a hundred years old.

The Lecturer stated that it was probably the old double-red *officinalis rubra* which was the common variety in old gardens and was known as far back as the time of Shakespeare.

Jacob W. Manning said that he knew John Richardson well and that he was noted for his spruce trees as well as for his peonies. He was an early planter of Norway spruces when they were but little known in this vicinity and had an ample garden of trees and shrubs in the late 40s. His varieties of peonies were shown at the exhibitions of this Society and can be found referred to in the Transactions.

Thomas Harrison asked if the peony was subject to any particular disease or insect injury.

The Lecturer replied that there appeared to be no disease affecting the peony and that it was "bug proof." The best location for the plant was on the borders of shrubbery, but it does well and looks well anywhere.

# NOTES ON THE CULTIVATION OF PEONIES.

BY ROBERT TRACY JACKSON, CAMBRIDGE, MASS.

Presented for publication August 23, 1904.

Papers referred to are listed at the end of this paper and are indicated by number in the text. To those interested many brief notes or longer articles on peonies will be found in Garden and Forest, 1888 to 1897, The Garden, [London], and The Gardener's Chronicle, [London], besides other horticultural journals. Very comprehensive though brief articles on peonies by W. Watson (18) and by Paul (15) give much information in regard to the early history of peonies.

Herbaceous peonies are mostly of the easiest cultivation. Full sunshine, or at least a good exposure to the sun is necessary as they do not thrive in the shade as under trees. The roots of trees or large shrubs are objectionable, especially elms, maples and lilacs, as absorbing the nourishment and water needed for the full development of the peonies. A location protected from the force of the wind is desirable where possible. Peonies will stand great variation as regards soil, but a heavy rather than a light sandy soil suits them best. Being strong feeders and vigorous growers they should be given deep cultivation, eighteen inches to two feet, even more is recommended by some, but I have had good results with two feet. An abundance of barnyard manure should be worked well into the soil especially before planting. If this manuring can be done some months previously, so much the better. Cow manure is best when available. Peterson (2) says that where propagation is the feature desired peonies form more and better roots in light rather than heavy soil.

Where the soil is sandy an addition of clay would doubtless be an advantage. In a heavy clay, which is the condition in my garden, a free use of sifted coal ashes and leaf mold, dug into the soil works wonders in ameliorating and improving its tilth.

Coal ashes contain little potash and add practically nothing of chemical fertilizing ingredients to the soil and nearly the same may be said of leaf mold, but both improve its mechanical condition which is of the very first importance, for successful plant growth. Sand and road scrapings where available are of course excellent for lightening heavy soil; stress is laid on coal ashes simply because their value is not usually appreciated and in small gardens it is a convenient available material, usually a waste product to be gotten rid of. My attention was called to the value of coal ashes by our President, Dr. Henry P. Walcott, who has used it for many years in his garden. It is much used by English and Scotch gardeners for clay soil. In the autumn cleaning of the streets in Cambridge the city carts collect great quantities of leaves which they are very glad to dump on the grounds of willing citizens. These in a single year, by turning once, make a fine, well decomposed leaf mold ready to dig into the garden, and give room for a new lot of leaves.

It is emphatically best to plant peonies in the fall. In the spring they may be transplanted if necessary; but it is undesirable to purchase stock at that time. Frequently plants purchased in spring will not appear above ground the first year, as may happen with excellent stock coming from a distance, also in spring there is more chance of the death of some plants than with fall planting. If plants are received in autumn too late for fall planting, as is sometimes the case in importing, or if they are in questionable condition, if small enough, it is best to pot them and plunge the pots in a cold frame for the winter. In spring they can then be planted out without disturbing what roots they have made.

Peonies may be left in the ground without transplanting some eight or ten years, but longer is undesirable if best results are to be attained. It is sometimes stated that peonies may be left in the ground almost indefinitely but this is a mistake if good results are expected. Miller says (14) "When you have a peony well established you should not disturb it for the next twenty years. A peony hates division of the roots worse than poison." These statements are extravagant, inaccurate and misleading, as are many others in his paper. The finest flowers are to be had on

moderate sized, well grown plants. If plants are left too long in the ground they sometimes die out in the centre.

For purposes of propagation plants may be advantageously taken up more frequently, every two or three years, divided with a large sharp knife (a small carving knife is very good), so as to leave at least one bud with a portion of the root. Peony roots are stiff and unyielding as well as brittle, so that they are very apt to be broken seriously in dividing. Harrison (6) says "Let them lie in the shade a few hours and wilt. This toughens them and does not hurt them a particle. You can immediately restore them to their plumpness by putting them in wet moss, or keeping in or planting in moist earth. This is very important." I have tried Harrison's method this fall, only I left them out of ground for several days in cool weather. When the roots become somewhat flaccid and yielding instead of rigid and brittle, they can then be easily divided without injury, even to solid old clumps. They will regain their original plumpness in a few hours exposure in a damp medium. Harrison has made an important contribution to the details of peony propagation by this communication.

The small plants after division may be set out in nursery rows, two feet apart, the plants being about twelve to eighteen inches apart in the row, according to size. In cutting up, some roots will be broken off and these may be planted with the rest as more or less will grow from adventitious buds starting under these conditions. Actual observations of what proportion will grow from adventitious buds would be desirable, but do not exist as far as I am aware. Harrison says (6) ". . . . if a root is broken at the centre, the lower portion can never form a head . . . . The upper portion of the same root where it breaks from the plant will have a good show for forming a head." He also says "I have often planted buds alone, with no root whatever. One fall I put in thirty, and the next year had twenty-seven fine plants." In propagating if the plants are choice, and are cut very fine it is desirable to set a frame over them the first winter. As Peterson (2) says herbaceous peonies of choice varieties may be propagated by grafting. This method is practised to some extent; but I think is most undesirable for herbaceous plants. Grafting is not expected in such plants and if practised endless

confusion in varieties may occur from the growth of adventitious buds from the stock. If this is done they should be grafted on *officinalis* stock or some other distinct species, so that shoots from the stock, which are likely to develop, will be strikingly distinct from those developed by the scion.

F. L. Temple in 1889 (16) suggested the method of propagating herbaceous peonies by heaping up fine rich soil over the crowns; under such conditions he found, by an accidental experiment, that roots and buds developed on the stems, which could then be cut off leaving the crown intact. Timme (17) in a recent paper recommends this method of deep burial as a means of propagation. According to him the procedure is as follows. In spring before there is any growth above ground a bottomless box or tub is placed over the plant and filled with nice porous soil to a depth of twelve or fifteen inches. The new growth will push through this layer of earth developing its foliage and flowers above it. By keeping this soil enclosed in the box fairly moist all summer it will be filled with roots about October. The stalks are carefully cut away below the new stratum of soil and cut into as many pieces as there are eyes provided with roots. These short lengths planted to a depth of about two inches below the surface will grow into fine stock in less time than will small root divisions. Timme says that this sort of layering succeeds well with nearly all herbaceous peonies.

Mallett (12, 13) in England also recommends this method of propagation as he says (12) "....cover the stools with eight inches of light soil made firm; growths will push through this in spring readily enough and will flower well, but in September the resting buds will be found on independent stems six inches long and with a mass of roots at their bases. These should be detached and planted forthwith, and the old soil cleared from the stools to admit warmth, when they will develop many buds hitherto latent, and which they always have in reserve. These will flower in the course of the season .... The flowering strength of the stools is but little impaired, but a vigorous thinning of several weakly growths may be necessary in the second season." (13) "Strong double peonies will often form three or four resting buds on one rooting axis. These may be removed individually with a por-

tion of the stem and its roots attached, potted, and grown on in a little warmth till planting time to encourage further root action." If this method proves as satisfactory as has been expressed, it may well be a most important means of propagating peonies. As Temple (16) suggested it would probably be best to fill in the earth gradually rather than the whole depth at the start, but this is a matter for determination. Leaf mold being fine, light, and retentive of moisture, would it seems be good material for covering.

In starting new beds or plantations it is safest to plant peonies where they have not been recently grown, as bits of roots may have been overlooked in digging up the plants, and such growing make confusion with varieties. If they are to be planted back in the same soil greatest care should be taken not to leave any roots behind when digging them up, but such care is never beyond the limit of possible oversight. Of course any given variety can be replanted in the same situation without risk of mixtures.

Peonies may be transplanted or dug up for division to best advantage late in August or in September, rather than in October or November, as the roots then have a chance to become established before cold weather. The crowns may be set about three inches below the surface, deeper planting is undesirable. For permanent planting peonies should be set three feet apart, or if there is plenty of room four feet is none too much. If set closer it will be difficult to get between the plants without injuring the blossoms. If plants are small when set out, interspaces may be utilized for Gladioli or any plants that will not cast appreciable shade or otherwise interfere with the peonies. Such plants had best be annuals, or of an annual character, as perennials would interfere with a free cultivation of the soil. In digging use a fork, not a spade, as less injurious to the roots of the peonies.

For a limited number of peonies scattered planting is desirable, as allowing for the full development of each individual plant without loss of space. When grown close together the blossoms during a heavy rain or wind are apt to be beaten down and entangled with the flowers and foliage of adjacent plants. Where considerable quantities are grown beds are doubtless best, thus having all together, a convenience in watering and other cultural treatment, also the effect of mass in a bed is very fine.

Plants should be set three feet apart each way in a bed, or better four feet between rows if there is room to spare. Never having had this luxury of space I can affirm that three feet will do very well. Beds six or nine feet wide and of any convenient length cut in grass (Fig. 1) and carrying two or three rows of peonies respectively are very attractive and easily gotten at for handling or inspection. Such beds are good for roses, phloxes, irises, or vegetables, which may be grown in rotation with peonies when they have to be taken up. Beds of this character are used extensively in the Botanic Garden of Harvard University in Cambridge, and also in the large garden of a skilful lady hor-

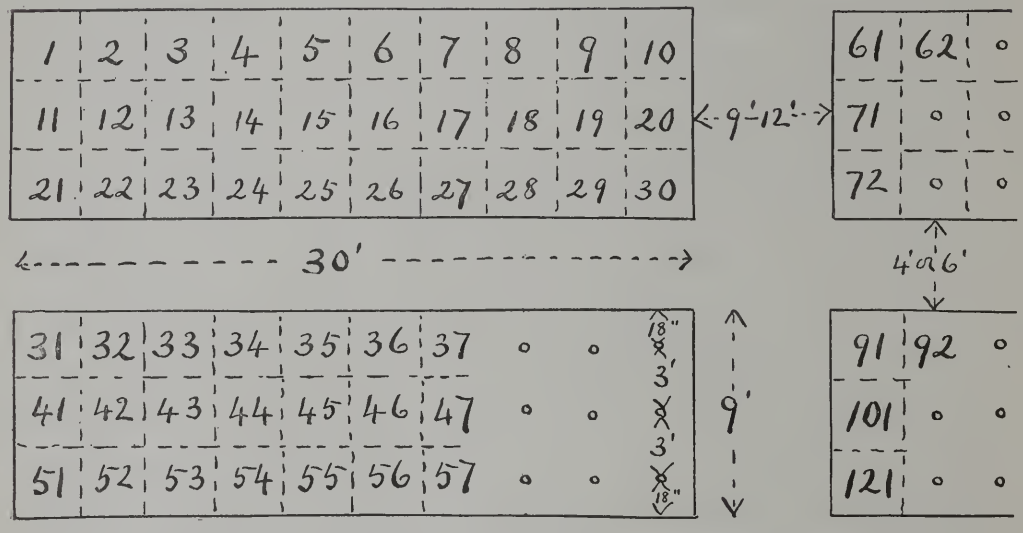


FIG. 1.—Plan of beds cut in grass; plants three feet apart.

ticulturist in Newport, where very best results and effects are attained. Large square beds with grass paths are used by Dr. Charles Sedgwick Minot, of Readville, in a large part of his extensive collection of some four hundred and fifty choice peonies, including two hundred and thirty-eight varieties. Such beds may be made of any convenient size, but beds for fifty or one hundred plants (Fig. 2), have certain advantages on account of the ease of keeping track of such numbers. An obvious advantage of such a system as shown in Fig. 1 or 2, is the ease of maintaining lists of plants in stock. Dr. Minot's plan, as in those here shown, is practically like the plan of a concert hall, where each seat, whether

occupied or not bears its own number. With a book or card catalogue of the plants a pencil number on the left hand side readily shows just where and how many plants one has of a given variety.

A peony well grown, or the same variety grown poorly or with average culture are very different. Unless really well grown one does not know what are the possibilities of this fine flower. Disbudding distinctly improves the quality of remaining flowers, especially on the larger varieties. In some varieties however where profusion of bloom is a feature they may be left to advantage. As stated by Mr. A. H. Fewkes (5) in an excellent article on peony culture, the lateral buds should be removed as soon as they are large enough to handle, so as to throw all the strength into the leading bud. As he also says, proximity to a hose is an important feature when possible in planning the position of a peony bed, for the free use of water in the growing season is a great aid in producing fine flowers. Liquid cow manure, or other liquid manure used during the growing season promotes a splendid vigorous growth and correspondingly superior flowers. Water from a cesspool is excellent; "tea," as a lady friend who has a sense of humor and an eye for a peony calls it. Sheep manure or other fine manure stirred into the soil about the peonies in spring works well, being washed down to the roots by rain or watering. In the late fall it is desirable to put four or five inches of barnyard manure above the crown of each plant. This may be done after the tops are cut off and the ground freezes hard; the manure being dug in in spring.

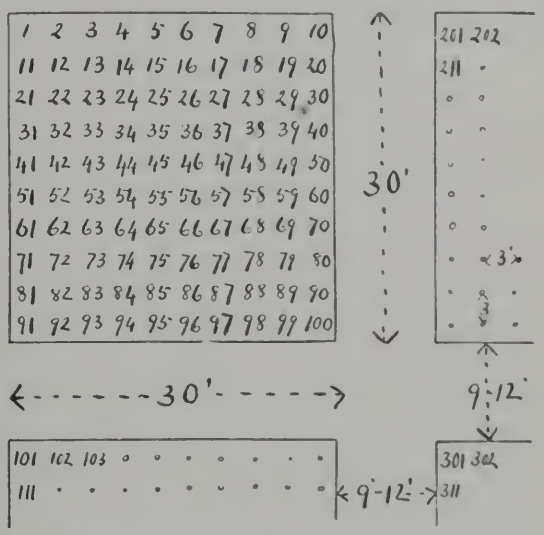


FIG. 2.—Plan of beds, each holding 100 plants three feet apart, or three feet apart in the row with four feet between rows.

Delicate colored peonies lose their color more or less in strong

sunshine, so that for very best results they may be shaded to advantage. By shading I have retained delicate shaded pinks in flowers, which were entirely lost in flowers of the same variety grown a few feet away, but not shaded. Of course opening flowers in the house has the same effect as shading, saving the delicate colors, and some of the finest blooms one sees are flowers thus opened off the plant.

Peonies have a great mass of petals, at least the double ones, so that when picked there is a large surface for loss of water. Such being the fact it is important that they be put into water as quickly as possible after cutting. The best method is to carry a pail or can of water into the garden and put the flowers instantly into water, not even waiting to cut a second bloom. Experiment has demonstrated that flowers thus instantly put into water will outlast flowers kept even a few minutes without water. This is especially important for flowers that are to be exhibited, or shipped to a distance. When a peony is on the plant there is a continuous flow of sap to the flower. On cutting, this flow being shut off, from the suction thereby inaugurated it is quite probable that air particles are sucked in. If this is true, such air particles would tend to obstruct the vessels, interfering with the succeeding flow of water. This view is suggested to me by Dr. J. L. Goodale, as he says, in surgery one of the most important details is to prevent air or other foreign matter being sucked into the veins when they are cut, thus causing occlusions. If cut peonies are to be shipped they had best be kept ten or twelve hours in water in a cool place, when they become surcharged with water and travel vastly better than fresh cut blooms. The same principles as regards cutting doubtless would apply to most other flowers as well.

Some method of keeping track of the names of peonies is a necessity to any careful gardener. When planted in rows or widely scattered, lists may suffice, but the best method is good labels, if supplemented by a list so much the better. Ordinary wooden labels six inches or even a foot long are practically worthless, being soon lost by decay or broken by garden operations. Heavy wooden labels, white pine, cypress or cedar, eighteen inches to two feet long, of seven-eighths inch stock,

with the ends dipped in tar, or well soaked in linseed oil, then painted on both sides, reserving a space for writing, and the name painted or written on them, are excellent, but expensive and conspicuous.

A label that is cheaper, simpler to prepare and less conspicuous as far as that feature may be desired, is a zinc label attached to an iron rod (Fig. 3). Such labels I have used for over twenty years with entire satisfaction. It is practically the same as that described by me some years since (8). As some improvements in details have been made I will describe the label here in full. The rods to which the labels are attached are two feet long, made of heavy wire one quarter of an inch in diameter; an eyelet is bent in the top and the rod galvanized after the eyelet is bent. This is an important point as galvanizing seals the opening of the eyelet. Such label rods are made to order for five dollars a hundred by wire workers in Boston. Shorter or lighter rods are less desirable as they do not go into the ground far enough to have a good hold, or are liable to be bent in gardening operations. Rods with an end flattened and an eyelet punched in it as sometimes sold are undesirable, being so sharp as to be dangerous in a garden. They are also too short and are not of sufficiently heavy stock. Zinc labels are kept in stock of various sizes to suit customers. I have preferred the English labels, number 21, measuring four inches long and one and one fourth inches wide, with two holes punched in one end (Fig. 3). They are large enough for any names, which smaller labels are not, and yet they are not conspicuously large. These labels are carried by a Boston seedman.

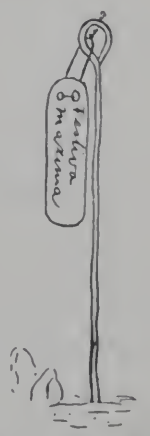

FIG. 3.— Zinc label with rod.

Fresh clean zinc may be written on with chloride of copper, or chloride of platinum ink, which makes a strong black mark. As some trouble has occurred from effacement of the writing ink from corrosion of the zinc, the following method was adopted which is most satisfactory. New labels are oxidized by exposure; practically they are simply thrown on the ground in some out of the way place and left for a month or two. When the

surface is roughened slightly by oxidation they are ready for use. Rub a little rather thick oil paint on the label with a rag, then write with a soft lead pencil while the paint is fresh. Such a label I have used for over fifteen years and it is almost imperishable if kept above the manure about plants, which will corrode the zinc badly. The label is attached to the rod by copper wire, which is vastly superior to galvanized wire, as the latter soon rusts and drops off, or at least soils the label. It is claimed that there is galvanic action between the copper and zinc, but after long experience I am confident that this is an error under open air conditions. In the moist air of a greenhouse such galvanic action may take place. Aluminum wire for attaching labels would probably be excellent. At the Arnold Arboretum zinc labels have been nearly worn through by the attaching wire in a short time; but there they are in trees well up from the ground and the wearing away is evidently mechanical from wind action.

To clean old zinc labels for use again they may be soaked in xylol (probably also in many other chemicals), which softens the paint, then scraped off with a knife and sand paper. The label has to be oxidized again by exposure before it is ready for use. Small unpainted wooden or paper labels for plants often have the name printed on them with rubber type, which is set up in a holder and is very convenient. The aniline rubber stamp ink used however is most objectionable, as it fades out entirely in a very short time. An absolutely permanent ink may be made as follows: To three parts of glycerine add gradually one part (by bulk, not weight) of a high grade of lamp black. Grind in a mortar until of the consistency of rather thick syrup. Spread on a thick felt pad, which is used for inking the type in the usual fashion. The pad for convenience may be kept in a tin box with a cover to exclude dust. This ink, described in 1898 (9), I devised for museum labels and it stands weather, water and alcohol with impunity.

In order to maintain satisfactory lists of plants in a garden, some sort of a plan of the garden is necessary. The plan may consist of plans of beds as in Figs. 1–2, or may consist of a plan of the garden as a whole. A very convenient and simple plan is one devised by my father, the late Dr. J. B. S. Jackson, and

which I published in the Transactions of the Society for 1884 (7). The plan is to number the fence posts in one direction as east to west, and letter those at right angles as from south to north. This forms a sort of latitude and longitnde by which a plant may be located in one's catalogue or lists. A given peony in my card catalogue bears in pencil on the left, "C 1, J. 6, M. 4," which tells how many plants I have, and a close approximation to their position in the garden. The pencil mark is easily changed if plants are moved. If fence posts exceed in number the letters of the alphabet, additional letters may be taken from distinctive letters of the Greek alphabet, or a modification of the Romar alphabet as AA, AB, AC, etc. Roman numerals are inconvenient for such use as being more to write, harder to read, and easier to make errors with.

A garden catalogne or lists are best written with Higgin's waterproof drawing ink which stands prolonged soaking without injury and cannot fade. In a recent experiment I soaked writing with this ink for eight weeks, immersed in water, without affecting the ink. This withstanding water with impunity is very desirable, as it is extremely annoying to have the ink of one's catalogne blnrred, or even obliterated, by a splash of water, which with most inks occnrs so easily from rain or otherwise when working over lists in the garden. This ink or a similar high grade carbon ink is also valuable for transient paper labels used in hybridizing, etc., and for shipping directions, or labels for exhibitions. On our exhibition tables the labels of peonies and other flowers, or potted plants, are frequently defaced or even obliterated from accidental wetting, which so easily happens under such conditions, and is absolntely prevented if a suitable ink is used.

Unless snpported in some way the larger, heavier peonies are apt to be beaten down when in bloom by wind and rain and seriously injnred. To obviate this difficulty some form of support is highly desirable. When planted in rows stakes may be driven into the gronnd at intervals, with a connecting wire run along the top; cross wires or light sticks secured to the connecting wires between plants are a material help. Another method, and one used by the late Mr. John Richardson, is to drive down

two or three stakes around each plant, connecting them by a stiff wire stapled to the top of the stakes. Barrel hoops attached to stakes make very good supports, but are limited in size and are rather conspicuous. A most satisfactory support, the best I have seen, devised by W. C. Egan (4), with slight modifications of his description is made as follows (Fig. 4). Three iron rods three feet long, are made of heavy wire one quarter of an inch in diameter, an eyelet is bent in the top, and the rods are galvanized after they are cut and bent. A circular connecting wire of lighter weight, one eighth of an inch in diameter and six feet six inches long, is passed through the eyelets and made secure by looping the free ends over the wire in such a manner that they will slip on the wire as shown in Fig. 4. Thus one can have the circular wire of full size, or reduced to any smaller diameter desired, and held in the reduced size by tying one end. Such supports are very inconspicuous, being practically invisible in a well grown plant, and have given satisfaction to several peony growers who have tried them. They are made by a Boston wire-working firm for three dollars a dozen. The supports as described by Mr. Egan are made of heavier wire, three-eighths inch in diameter, which seems unnecessarily heavy, and legs two and one-half feet long, which are too short for my peonies.

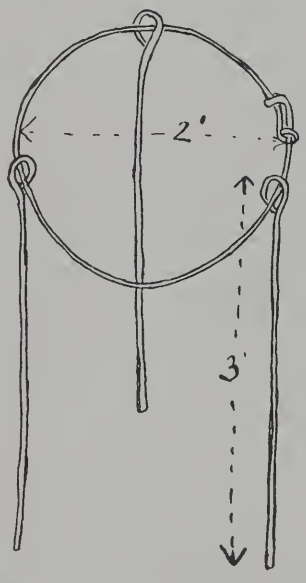

FIG. 4.—Egan's Peony Support.

According to Baker (1) in his revision of the species there are about two dozen species of peonies. He lists twenty-two species with their synonyms. Lynch (11) lists and describes twenty-five species and figures the foliage of many of the species. Excepting *P. tenuifolia* and perhaps *P. Wittmanniana* (which is somewhat difficult to grow and I have not seen the blooms), most of the species are said to be not striking as garden flowers, and are of interest principally to the collector. They might of course be of value in hybridizing, to break the blood of cultivated forms.

The earliest peony to bloom is *Pæonia tenuifolia*, both the single and double forms, which appear in May. The flowers though small, are of brilliant coloring, and well worth growing. Next in succession comes *Pæonia officinalis* var. *rubra*, the old-fashioned double red peony of our grandmother's garden. Its superb color, freedom of bloom and large size when well grown render it one of the best of peonies and indispensable in a garden. *Pæonia officinalis* var. *rosea*, a fine nearly cherry red variety of much merit, and var. *alba* which is a delicate pink on opening, changing to white before fading, are important additions, both as being good peonies, and as coming early and therefore extending the season of bloom. Other varieties of *officinalis* are listed in foreign catalogues, but I have not seen them.

Tree peonies, or *P. moutan* varieties, come with the *officinalis* and extend over to the season of the Chinese peonies. *Pæonia moutan*, according to authorities (Lynch (11)), is not known in the wild state, being known only in cultivation, first in China and Japan, where it has been grown for a very long period of time. Professor Charles S. Sargent writes me that he does not know of it in the wild state, but believes that it will sooner or later turn up. It is a somewhat remarkable fact that a large growing shrubby species, and the only shrubby species of the genus, should be known only as a cultivated plant. Tree peonies are not as easy to grow as herbaceous peonies, are less hardy and more difficult to propagate, also it is not as easy to get really choice varieties. As far as known, all the Tree Peonies in the market are grafted on *moutan*, *albiflora* or *officinalis* stock. Auguste Dessert (3) claims that they do best grown on *moutan* stock, although it is difficult to get roots of this stock large enough. He says that they use *Sinensis* [a variety of *albiflora*] stock and cut scions with two or more eyes and so disposed that at least one eye is beneath the surface of the ground; this eye greatly encourages the formation of roots in the graft. Kelway (10) gives interesting notes on raising *moutan* seedlings and in regard to grafting says: "First procure a sufficient quantity of tubers of *P. Sinensis*; cut these into lengths of about six inches; then take grafts from the sorts you wish to increase and insert these into the upper end of the tuber in the ordinary way of

cleft-grafting, tie securely and cover the junction with grafting wax so as to exclude the air. These should now be potted into five-inch pots, using a rich compost; the pots should be plunged into frames unheated; give a good watering, and cover the frames with a thin mat to partially exclude light. In the winter they should have an extra mat to protect them from severe frost. The best time to perform this operation is in the months of August and September." Tree Peonies do well on *officinalis* stock as I know from experience. The Japanese I believe graft on *moutan* stock alone; but one difficulty with that is that shoots from the stock cannot be distinguished from shoots from the scion until blooming, whereas shoots from *albiflora* or *officinalis* stock are detected at once. Layering as suggested by some writers, though slow, would doubtless yield most satisfactory plants.

The Chinese peonies of the *Pæonia albiflora* stock come next in season of bloom. The varieties as known appear to be the results of variation of the stock, hybridization, or the crossing with other species, having entered in very little if at all, as far as one can judge from the character of the foliage. They are in bloom about the first of June for the earlier varieties and extend into July for the last blooms of the later varieties. The single varieties are usually amongst the earliest to bloom, but some double varieties are nearly as early. In the past two years the early Richardson seedling, George B. Sowerby, has been in full bloom on the fourth of June. The latest of the choice seedlings raised by Mr. John Richardson, named Milton Hill, this year had secondary blooms still left in July. We may therefore by selection, starting with *Pæonia tenuifolia*, get about six weeks or a little more of flowering season for peonies. It would be desirable for dealers in peonies in their catalogues to give more explicit statements of season of bloom, especially the earliest and latest varieties as an aid to purchasers.

In considering the qualities of a peony, color and form are of the first importance. Freedom of bloom is also an important feature, for some varieties while of good form and color are such shy bloomers that they are from this quality not desirable for the general cultivator with few varieties. Extra freedom of bloom on the other hand is a feature especially desirable. One other

point of much importance is strength of stem. Many fine peonies have such weak stems that they flop over hopelessly from their own weight, others stand erect, thereby developing their flowers much better and showing off to infinitely greater advantage in the garden. Lasting qualities is a feature of importance, especially to the dealer in cut blooms.

Seedlings of *Pæonia albiflora* varieties require four to six years to bloom. The seed should be planted as soon as ripe in rich mellow soil, if protected by frames so much the better. They are best left without disturbance until blooming, but if planted too thick, will have to be transplanted. Very double flowers rarely set seed, yet an occasional capsule will develop on an otherwise sterile plant. Harrison (6) says that: "Seedlings will often bloom single for years and then turn double." I have never seen such a case. Doubtless seedlings may improve in size and quality with age, but as far as my experience has gone the first bloom, if strong, is a very close indication of what may be expected as the permanent character of a seedling.

It would be highly desirable for peony dealers to insert in their catalogues after the names of varieties the name of the originator. It is only fair credit, and adds much to the interest in these and other plants to know something of their history, who raised them and when. This is done somewhat, but rarely systematically as it should be. Messrs. W. A. Peterson of Chicago, and C. W. Ward, of the Cottage Gardens, Long Island, in their catalogues for 1904, note the originators of peonies very fully, also the Lemoines of Nancy, France, do the same, though not as fully, on the other hand, the Kelways, of Langport, England, list their own seedlings, but ignore the names of other growers.

The American Peony Society is studying the nomenclature and seeking to ascertain as far as possible when and by whom each variety was raised. The results of their inquiries are looked forward to with interest. Professor John Craig of the Horticultural department of Cornell University, at Ithaca, New York, in conjunction with the American Peony Society, is attempting to collect and grow all the known varieties of herbaceous peonies. By this means the synonymy can be straightened and the really best varieties ascertained. He has already gathered over six

hundred varieties, which are to be grown in a fine piece of land well adapted for peony culture. Such experiments are of a high degree of value and interest, carried on by recognized experts, under auspices of an impersonal character, and where they can receive the benefit of a critical study best found in such a horticultural centre. Similar studies of other groups of cultivated plants it is believed would be productive of much good.

Another thing that might well be done by the American Peony Society, or by a horticultural society, or journal, is to prepare and publish a bibliography of the literature of the peony, including references to published figures of species and varieties. Such a bibliography could, to advantage, be annotated by the editor. Many short but important articles are apt to be overlooked, and a cultivator wishing to see a figure of a given variety, or species, may have a long search before finding it, or may take the trouble without reward, because no published figure may exist. Bibliographies of special topics are an important feature in scientific subjects, and it seems that no more important matter could be taken up for the advancement of horticulture than lists of published papers, or larger works, on our more important cultivated plants.

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John Richardson

# JOHN RICHARDSON: HIS HOUSE AND GARDEN.

BY ROBERT TRACY JACKSON, CAMBRIDGE, MASS.

Presented for publication, October, 1904.

Having been requested to prepare a notice of my friend the late Mr. John Richardson, and his garden, for the Transactions of the Society, I undertook the writing with pleasure, as it seemed that some adequate description should go on record of this remarkable man, his interesting house and garden, all now a memory only, for their material presence is a thing of the past. He was a rare old man, it was a rare old house, and a rare old garden, and it was my privilege to know them intimately.

The Olivers who in colonial times built and lived in the old Richardson, or Everett house, as it is usually called, were intimately associated with the owners of many famous old houses in Cambridge and Medford, so that some account of these houses and their owners is also given.

I would express my warm thanks to kind friends who have given me information, especially Mrs. Alonzo Prouty, a relative of Mr. Richardson's; Mrs. C. R. Howard; and Henry M. Spelman, Esq., of Cambridge, who sought in the Registry of Deeds for facts in regard to the Lowell and other lands. A list of obituary notices of Mr. Richardson, and references made use of, is given at the end of this paper.

## Mr. Richardson and His Family.

The late Mr. John Richardson, well known as a skilful horticulturist, and especially known for the choice seedling peonies that he raised, was born in Boston the 19th of February 1798, and died in Dorchester the 22nd of September 1887, in the ninetieth year of his age. He was a "remarkable man, .... whether we consider the versatility of his gifts, his extensive reading and wonderful memory, the unusual refinement of his

nature and tastes, or the uprightness of his character and the purity of his life." (Obituary notice, 3). Simple, without ostentation, he was a man of marked individuality of character, vivacious, original, of quaint personality, a gentleman of the old school in the best sense of the word; beloved by his intimates, respected by all. He left a lasting impression on those who knew him. He was very generous to charities, as attested by those who had good reason to know. One day he greeted his pastor's daughter with the words: — "I saw you coming, so brought down my purse to save the trouble of going up for it."

The accompanying portrait is from a daguerreotype taken in Dorchester, the 25th of September 1851, he being then in his fifty-fourth year. The signature, however, is from a manuscript signature written in 1887, a few months before his death. For the loan of the daguerreotype reproduced, also for access to the interesting old account books and brief diary of Mr. George Richardson, running from 1819 for some twenty-five years, and for many facts in regard to Mr. John Richardson, I am indebted to his relative, Mrs. Alonzo Prouty, who was an inmate of his household for some seventeen years.

John Richardson was of the sixth generation descended from Thomas Richardson, one of three brothers who came over from England about 1635. This branch of the family lived successively in Charlestown, Woburn and Lancaster, in that portion of the town which later became part of the town of Princeton. (Vinton). John Richardson, the youngest of several children, was the son of William and Susannah Richardson, his mother's maiden name being Susannah Walker.[1] The children were, Thomas B., settled in Tiffin, Ohio, and died at the age of eighty; Nicholas Boylston, a merchant in Hayti; William, settled in Richmond, Virginia, and died at about seventy years of age; Susan Boylston, born about 1785, died 3 August 1832, aged

[1] William Richardson Jr. (son of Wm. and Esther (Joslin) Richardson) married Susannah Walker, 12 Nov. 1779. (Vital records of Princeton). Vinton says (p. 617), that William's wife was a Miles. This, Mrs. Prouty assures me, is an error. There was a lady, Mary Miles, who lived with the Richardsons, and was called Aunt Miles, though not a near relative, which perhaps, gave rise to the error; she is buried in the family lot at Forest Hills cemetery. There is no evidence for two wives.

forty-seven; Dudley, born about 1789, died 3 Nov. 1808, aged nineteen; George, born about 1796, died 16 May 1861, aged sixty-five; and John, born 1798 (from Vinton, combined with records from monument at Forest Hills cemetery, and Suffolk deeds). William Richardson, the father, came from Princeton, Mass., and was a dry goods merchant, making a special feature of silk. He lived and had his store at 65 Cornhill, on the south corner of Williams Court, colloquially known now as Pi, or Pie Alley (Figs. 5, 6). The name Cornhill was retained until 1824, when it with other parts of the same street received the name of Washington street. William Richardson appears at this location, 65 Cornhill, in conjunction with Dudley Walker, in the Boston Directories of 1796 and 1798; in directories of 1800–1816 he appears at the same location by himself, and in 1818 his son Nicholas appears at the same location and in the same business. As shown by probate records Nicholas was a partner of his father's before the latter's death. Later he went to Hayti, as above stated.

This old locality is interesting as a part of old Boston as well as the birthplace and early home of Mr. John Richardson, so that records of the sales are introduced here. They were kindly supplied to me by Mr. Spelman. Joseph Ford of Boston sold to William Richardson and Dudley Walker, merchants, both of Boston, the estate No. 65 Cornhill, 26 August 1796. (Suffolk Records, Book 184, p. 117). A sketch of the land as described in the deed is given in Fig. 6. There was a brick house on the premises and the consideration was $7,000. Dudley Walker sold his half to William Richardson, 19 April 1800 (Book 197, p. 260). William Richardson sold to Gardiner Greene, of Boston, gentleman, on 19 December 1806, consideration $20,000 (Book 197, p. 260). Gardiner Greene reconveyed to Richardson on 17 February 1809. William Richardson died intestate 1 December 1815. His inventory includes a mansion house, $15,000. His heirs are not named in the probate records, but on 22 December 1819, Thomas B., William, George, Susan B., John and Nicholas B. Richardson convey to Samuel Fales (Book 266, p. 153), reciting that they are heirs at law of William Richardson, deceased. In that deed the passageway is called Williams Court; the Winthrop

FIG. 5.—From Bonner's map of Boston in 1722. "A. The Old Church, 1630" = site of the present Roger's Building. "C. Old South [Church], 1660." "E. Ch[urc]h of England, 1688," = King's Chapel. "K. French [Church], 1716." "a. Town House" = Old State House. "b. Governor's House." "Bishop's A[lley]" = Hawley St. since 1800. "Common St. [after 1836, and] Treamont St" = Tremont St. "Coopers A[lley since 1829 and] Mackrell L[ane]" since 1769 = Kilby St. "Hillierss L[ane]" = Brattle St. since 1820. "King St." = State St. since 1784. "Leverett L[ane]" = Congress St. since 1800. "Marlbrough St. [and] Cornhill" = Washington St since 1824. "Pudding L[ane]" = Devonshire St. since 1784. "Queen St." = Court St. since 1784. "Rawsons L[ane]" = Bromfield St. since 1829. Savages Court, after 1789 Williams Court, now colloquially known as Pi, or Pie Alley. The entrance archway to Williams Court from Cornhill, since 1732 has been called Webster's arch and lies above the letter h, in the word Cornhill. (Change of names from Nomenclature of Streets, City of Boston, 1879. Compare Figs. 6–7.)

land is owned by Andrew Brimmer and the Webster land, by William Thurston. The Richardson estate is now Nos. 241 and 243 Washington Street and No. 2 Williams Court. A sketch, Fig. 7 shows the present owners of the Richardson and adjacent land for comparison with the sketch of 1796.

"William Richardson's mother was of the French family of Joslin (originally spelled Jousselin) and from his French ancestry, John Richardson doubtless derived that vivacity which was

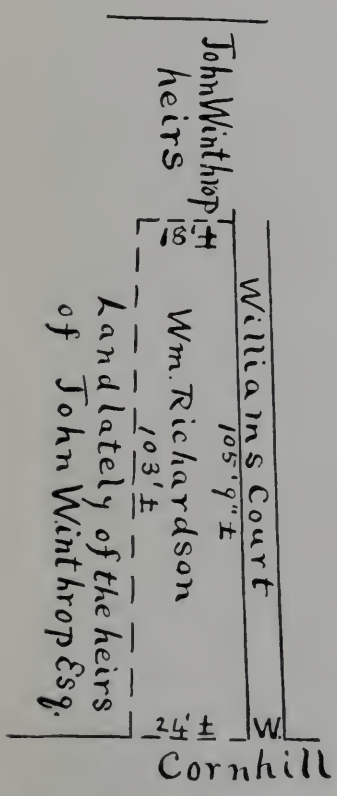


FIG. 6.— Plan and location of the William Richardson lot in 1796. Here John Richardson was born in 1798, compare with Fig 5.

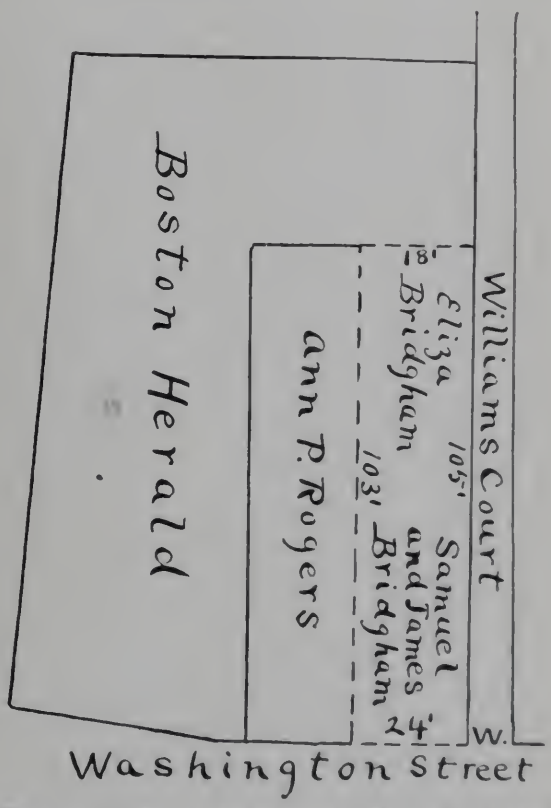


FIG. 7.— Present plan and ownership of the same land, 1904.
W. in both figs. is Webster's arch, the entrance archway to Williams court. The archway is seen in Fig. 5 above the letter h, in the word Cornhill

one of his distinguishing characteristics. John Richardson's maternal grandmother was Susanna Boylston, daughter of Dudley Boylston of Brookline, Mass." (Obituary, 3). She was a member of the family of that name who held such a prominent position from their abilities and public bequests.

John Richardson passed his childhood and youthful days in Boston and retained a vivid impression of what it was then as a comparatively small town. He often spoke of the fine old garden of Gardiner Greene on Pemberton Square. From this garden, which was famous in its day, was transplanted the Gingko tree that is now growing on Boston Common, opposite Joy Street. In boyhood he was educated by the father of John Howard Payne, the author of "Home, Sweet Home," who kept a select school in Boston. (Obituary, 4). In his reminiscent talks he told of going to the Old Brick Church (Fig. 5) which stood on the site of the present Rogers Building, and relieving the tedium of the service by watching the pigeons on near by roofs. The pigeons and the State House are all that is visibly left of his boyhood days in that locality.

After the death of their mother in 1814 and father in 1815,[1] John with his brother George and their sister, Susan Boylston Richardson, moved from Boston in 1819 to the old Everett Mansion in Dorchester. They hired it of Mrs. Oliver Everett, widow of the Reverend Oliver Everett. In Mr. George Richardson's account book occurs this entry under 7 April 1819. "Paid Mrs. Everett one quarter's rent in advance $62.50." Similar entries occur at later dates until on 1 October 1833, we find the entry, "Bought the Everett estate in Dorchester."

Dorchester was real country when the Richardsons went there in 1819, and even in my own early recollection, pastures, farms and gardens were the rule. In his early Dorchester days, public conveyance to Boston was by a coach that ran from Boston to Milton once a day, Sundays excepted, leaving Elm Street, Boston, at five o'clock in the afternoon, and arriving at the same place at ten o'clock in the morning. (Boston Directory, 1820, p. 19). Now there is an electric car probably every three or five minutes, either passing the site of his house or not far off.

Mr. John Richardson was delicate from a child, never devoted himself to business and never married. His brother George, with their cousin William Richardson, was engaged in the West India trade and amassed a substantial fortune. Their business

[1] Dates from gravestones in Forest Hills cemetery.

THE RICHARDSON (EVERETT) HOUSE BUILT BY ROBERT OLIVER IN 1748, VIEW FROM THE SOUTHWEST.

house was on Rowe's Wharf, Boston. Another brother, Nicholas, formed the Haytien end of the firm. Relieved of business cares Mr. Richardson devoted himself to music and horticulture. He was accustomed to practice on the piano six or eight hours a day, and was said to be a remarkable musician with a fine ear and touch. A good deal of manuscript music exists written in his careful painstaking hand, and for a number of years he gave music lessons. His affection for his brother George was unbounded, and when the latter died, in 1861,[1] Mr. Richardson closed the piano and never played on it afterward, nor allowed it to be opened. His affection for his brother was shown in a number of characteristic ways. George's studio was in the top story of the house, seen in Pl. 5 (the right hand window), commanding a view of Dorchester Bay, and lined with the pictures that he had painted. Some of his pictures, as noted, are seen in the sitting room and parlor (Pls. 6 and 7). His studio was kept locked and left untouched after his death, and the wood he had brought up shortly before his death was left by the stove for twenty-six years. To be taken to this room was a mark of highest regard that Mr. Richardson could show to a friend. It was indeed sacred to him.

It was my privilege to know Mr. John Richardson intimately from my early childhood. Being an old friend and neighbor of my father's, the late Dr. J. B. S. Jackson, whose house was that marked Urann, on the map (Fig. 8), I went with my father to see Mr. Richardson frequently as a child, and later by myself. Mr. Richardson was a highly cultivated man, with a keen interest in literature and the world, in spite of his secluded life. He was a shrewd observer and keen critic, with a deep fund of humor and sense of fun, bright, vivacious, resourceful, a delightful conversationalist and a good story teller. He was very fond of Scott's novels which, as well as poetry, he frequently quoted. Of very retiring and diffident disposition, he was little known to the public and only occasionally visited a few intimate friends. To his intimates he was cordial and gracious with an old time courtliness

[1]An obituary notice of Mr. George Richardson appeared in the Boston Evening Transcript, 29 May, 1861, p. 2. [Signed Dorchester, 28 May 1861. —H. (doubtless Rev. Nathaniel Hall, his pastor).]

of manner that was as captivating as it is uncommon. He was punctilious in observing little details of etiquette to a guest. Always carefully dressed in a black coat and vest, gray trousers, with a high stock and brown wig, in the street he wore a well brushed silk hat of old fashioned type. Straight as an arrow, he moved with a quick elastic step and never showed his age by stoop of shoulder or mental failing, but died in ripe old age with all his powers intact.

Mr. Richardson kept a horse and insisted that he should show a good gait. His carriage was an old-fashioned vehicle, a sort of combination of carryall and wagon, which he spoke of as the "go-cart." "Johnnie," he would call to his man of all work John Hynes, who lived with him for nineteen years, "Johnnie, go hitch up the go-cart." A frequent trip was to see Mr. James Jackson, who was a keen horticulturist, and had a small but choice garden at City Point, South Boston. To see these two old men, both experts, discussing the cultivation, merits or failings of their favorites was a delightful experience. He never took out the horse on Sunday, but Sunday morning, winter and summer, might be seen regularly walking to the Unitarian church on Meeting House Hill, about a mile distant. He regulated his departure so as to arrive at church just in time, and at the close of service was almost the first out, and walked directly and rapidly home. It took a quick walker to overtake him if he had a slight lead. This church, the First Parish Church of Dorchester, was a typical old New England meeting house of which he seemed a natural part. A figure of it is given by Orcutt (p. 225). This building was burned down in 1896, but its worthy successor is built on the same lines of beautiful simplicity.

Mr. Richardson was very fond of animals, and always kept a cat that received solicitous care. In winter he used to feed the gray squirrels with butternuts that he saved from his trees in the autumn. Opening the window in his sitting room he would call in his gentle voice, "Bun, Bun," and a squirrel would soon appear on the sill and take the nut from his hand. He was fond of birds, knew them by their note, and in earlier years kept many loose in a sunny room of his house that he fitted up as an aviary. This room on the east side of the house, seen in Pl. 5 (the two

THE RICHARDSON (EVERETT) HOUSE, BARN AND FRUIT HOUSE, FROM THE SOUTHWEST.

right hand windows of the second story), was in later years filled with house plants.

His family when I knew him consisted of his relatives, Miss Maynard and Miss Reynolds. Miss Maynard he always addressed as Miss Nancy, and she him as Mr. John, as did all his household, including help. A quainter household, or one in which heartier old time hospitality to a guest was shown, would be difficult to find.

In his will Mr. Richardson left to the City of Boston "the triangle" for a public park. On this land the historic Blake house now stands. (History of Dorchester, p. 388; Orcutt, p. 369–370, figure p. 63). This house, built prior to 1650, was in 1895 moved to its present site for preservation, by the Dorchester Historical Society.

## Mr. Richardson's House.

As the original location of Mr. Richardson's historic house is now ambiguous from the changed topography of the region, a sketch map (Fig. 8) is introduced copied from Whitney's map of Dorchester published in 1850. Chestnut Street, of this map, "was discontinued in 1853." (Dorchester Book, p. 15). Massachusetts Ave. has been built and also Columbia Road, which at this point absorbs parts of Pond and Boston Streets.

The Richardson house was located at the Five Corners, the junction of Boston, Cottage and Pond Streets. The house with its large garden and orchard, as a whole about three acres in extent, was Mr.

FIG. 8.—The Five-corners and adjacent territory in 1850.

Richardson's home for sixty eight years, up to his death in 1887. The house was built by Colonel Robert Oliver in 1745. It was also for a time the residence of his son, Lieutenant-Governor Thomas Oliver, (p. 187) who is "supposed to have laid out the garden," (Wilder) in the formal old lines that were never departed from. Succeeding the Olivers, the house after an interval, in 1782, passed into the hands of the Reverend Oliver Everett, whose eminent son Edward Everett, was born there 11 April 1794, also Sarah Preston Everett, the mother of Edward Everett Hale, was born there 5 Sept. 1796. Oliver Everett died 19 December 1802 (Dorchester Births, Marriages and Deaths).

A charming old colored cut of the house appeared in "Homes of American Authors" (p. 217). Many figures of the house have been published in local histories and similar works, all being taken from the southwest, as in Pl. 2. The figure in the Everett Centennial is perhaps the best published figure. From the front view it appeared to be a square house; but was in reality L shaped, as shown in Fig. 10. The roof was surmounted by a colonial type of balustrade, ornamented at the posts by a series of "flames" best seen in Pl. 2, and one of which is reproduced (Fig. 9), after Reverend Edward Everett Hale.

FIG. 9. — One of the "flames" surmounting the balustrade on the roof.

Mr. Richardson kept everything in good repair about the house but apparently never altered anything, so that with its old time dados and mantels, carved banisters, old-fashioned furniture and pictures it remained to the last an example of the fine old mansions of the past. The whole estate bore the marks of a very old place, unmodified in plan by changing time but added to and improved by a man skilled in the arts of horticulture.

As the only published description of the house is a very brief one in the Boston Herald, it is desirable to place something on record. The house, which is shown most clearly in the view taken in winter (Pl. 2), set back some sixty feet from the road on Pond Street and a little nearer to Boston Street. The sur-

THE RICHARDSON (EVERETT) HOUSE IN SUMMER, FROM THE SOUTHWEST.

THE RICHARDSON (EVERETT) HOUSE FROM THE NORTHEAST, INCLUDING PART OF THE GARDEN.

rounding grass plot was bordered by a low paling fence, just within which were fine old buttonwood trees (originally twelve, but in my day some had been cut down), also some spruces, elms and a number of old lilac bushes. Three of the buttonwood trees show respectively a circumference at three feet from the ground of nine feet ten inches, ten feet four inches and ten feet four and one-fourth inches. Being old trees they were quite probably planted by the Olivers. There were two main entrances as shown in Pl. 4, a view taken in summer,[1] one on Boston Street and one on Pond Street; the latter (on the right in Pl. 4), was more frequently used. Approaching the house from Pond Street along a path bordered by box edging and two large lilacs, one made his presence known by the old-fashioned brass knocker, that was never replaced by the new-fangled bell. In all probability the door would open slightly and Mr. Richardson would peep out to see who was there. Then with a ceremonious wave of his hand he would open wide the door and give

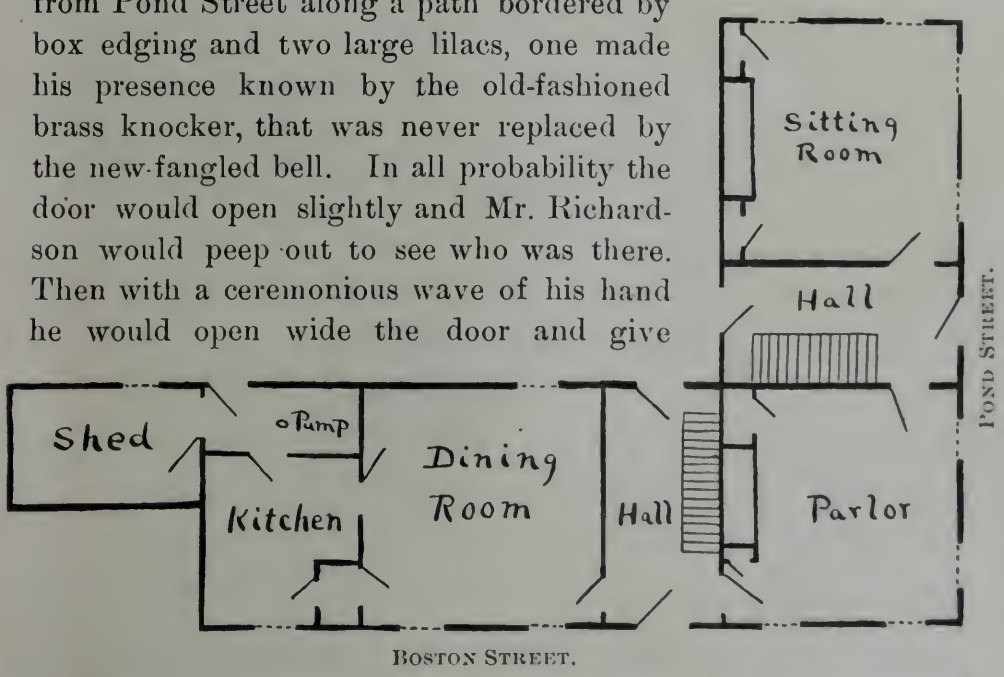


FIG. 10.—Plan of the first story of Mr. Richardson's house, drawn from memory and photographs, but approximately correct.

courtly greeting to his guest. The door opened into a large hall, at the other end of which a second door opened upon an arbor-clad porch covered with grape vines (the arbor seen in Pl. 8).

[1]This view was taken some years after Mr. Richardson's death. The fence had been moved back nearer the house, so that a tree appears in the sidewalk, and at least one old buttonwood tree had been cut down. A sign board, near the Pond Street gate, indicates an entrance to Columbia Road, part of the Boston Park System.

A broad staircase with spirally carved banisters led to the second story. On the right was the sitting room (Pl. 6), where Mr. Richardson spent much of his time when in the house. The east windows of this room overlooked the garden, they being the two lower windows seen in the picture of the garden (Pl. 8). To the left of the main hall was the front parlor (Pl. 7), less occupied, but a delightful old-fashioned room with high dado, fireplace, old pictures and a piano with keys muffled, so that Mr. Richardson could practice on it without disturbing the household. The furniture was old-fashioned like that of all the house. The pictures seen in the figures of this room and the sitting room were painted by Mr. George Richardson, who was skilful with brush and pencil. The dining room was in the rear of the house, the two west windows to the left of the Boston Street doorway (Pl. 2) belonging to that room; another window looked into the garden (Pl. 8). From the hall adjacent to the dining room one door opened on to Boston Street (Pl. 2), and a second door faced the garden and is seen open in Pl. 8. A second stairway with spirally carved banisters led from this hall to the second story. The kitchen and shed lay to the north of the dining room (Pls. 2, 5). Upstairs were the large square bedrooms usual in old-time houses. The southwest corner room of Pl. 2, with windows facing south and west, was Mr. Richardson's bedroom, and the southeast corner bedroom, that on the right of Pl. 2, and the two upper windows of Pl. 8, is the room in which Edward Everett was born. From a closet in this room a secret stairway led to a small room above. This stairway was steep, about a foot wide, and was hidden by clothing hung in the closet. In the attic were a servant's room, store rooms and Mr. George Richardson's studio, one window of which is seen on the right in Pl. 5.

An old-fashioned barn, with stable yard in front, lay to the north of the house (Pl. 3); connected with the barn as seen on the left (Pl. 3), was a fruit house, built by Mr. George Richardson. There was no water or gas in the house, but the time-honored pump was in the shed and tool house back of the kitchen. Here were the usual assortment of garden tools, baskets neatly painted a dark green, the owner's garden gloves always stuck on the

MR. RICHARDSON'S SITTING ROOM, THE WINDOW ON RIGHT OVERLOOKED THE GARDEN.

MR. RICHARDSON'S PARLOR, THE PICTURES ON THE WALL WERE PAINTED BY HIS BROTHER.

handles of a large pair of garden shears ready to hand for a sally into the garden. Illumination was by whale oil, or later by cotton seed oil lamps.

This beautiful old house, a gem of antiquity, in the "march of progress" was torn down in 1898 and its site is empty, but close by is a modern three story apartment house. A house of such associations and such a choice example of colonial architecture should have been preserved. Further details in regard to the history of Mr. Richardson's house, and other houses with which it is associated are given on pages 187 to 190.

## Mr. Richardson's Garden.

The garden (Pl. 8) lay on the east of the house, sloped gently eastward and was perhaps half an acre in extent. It was bounded by the house, barn and connecting fence on the west, a high board fence on the north, and a low paling fence on the east and south. Against this paling fence as seen in Pl. 8, some of his dahlias were grown and to it were tied as a support. In the garden were large grass plots intersected by square cut paths, bordered with box edging, within which were the long flower beds some six to eight feet wide. Excepting for the bulb border and beds of seedlings, all the plants were scattered, in what is called the mixed border system of planting. Peonies occupied salient points. Beyond the garden to the east lay the vegetable garden and orchard, of perhaps two acres in extent. Some fruit trees were also grown in the triangular piece of land opposite the house, bounded by Pond and Cottage Streets (Fig. 8) and always spoken of by the Richardsons as the "triangle." This piece of land belonged to Robert Oliver, but was not part of the Everett property. It was purchased at auction in 1841, by Mr. George Richardson, as recorded in his account book.

Mr. George Richardson took a very active interest in fruit and vegetable growing and planted many varieties of pears, apples, peaches, plums and quinces, various small fruits and vegetables. A favorite was some gooseberries called "Roaring Lions," that he imported. His brief diary, from 1819 on, is full of allusions

to the varieties of fruits and vegetables in the garden, and dates of planting or grafting. They made annually several barrels of wine from currants, red, white and black, also from grapes.

In his diary for many years Mr. George Richardson noted the arrival of the blue-birds, swallows, wrens, bob-o-lincolns (as he called them) and other birds. He noted also details of frost and weather in general, how much the hog weighed when dressed, and similar homely things which are full of interest coming from so far back and written with a loving interest in country life. John Richardson took an interest in fruit, especially pears, but his chief interest was in flowers.

Mr. Richardson had a perfect passion for horticulture and every plant in his garden that he loved so well was a real personality to him. His absorption in this interest lasted to the very end, for visiting him in his short illness, a few days before his death, the old subject was brought up just the same. It was a great treat to the horticulturist to visit his garden, for in it were large numbers of rare as well as common plants, and choice seedlings, all grown to a perfection that in itself gives to the experienced almost or quite as much pleasure as qualities of rareness or novelty. A walk with him about the garden meant a lingering at every step to consider the merits, the history or some cultural point in regard to the plants that were as his children. His taste was refined and exceptionally critical, so that a plant to meet his approval must have real merits, his commendation was a guarantee of excellence. The love of gardening was born with him, when a child he used to plant date seeds in his father's yard in Boston, and the fascination of raising plants from seed and thus producing new and improved varieties always clung to him. By this means he raised many choice dahlias, phloxes, deutzias and especially peonies, but it was not only these, everything that came to hand he tried to raise from seed. Peonies take about four to six years to bloom from seed, yet when nearly ninety he planted peony seeds just the same as in earlier years and some of his posthumous seedlings are amongst the best. Double flowers he especially admired, and he never cared for the single dahlias and peonies that have come to the fore in recent years.

He rarely picked his flowers except for a visitor and never had

MR. RICHARDSON'S HOUSE AND GARDEN FROM THE EAST; DAHLIAS, ISMENES, IRIS SIBIRICA AND A PEONY ARE SEEN IN THE FOREGROUND.

many cut flowers in the house.[1] A small glass vase on the piano in the sitting room usually had two or three blooms in it; but these were quite as likely to be from some other garden as from his own. Some look at a flower as something to be picked; but he preferred to leave them in the garden. An amusing story is told by a relative of his and since connection of my own, who went to ask him for a peony to use in designing for embroidery. He took her into the garden filled with splendid blooms, cut one and said: "Handle it very carefully or it will drop to pieces." He always refused to sell plants; but gave roots to a few garden friends.

Labels were an exception in Mr. Richardson's garden, for he rarely labeled anything, most of the plants being marked by a stick to locate their position, or not at all. He never in my experience spoke of any of his seedling peonies by name, but called them the early white, pink or crimson, etc. Mr. Richardson never kept any garden records as far as I am aware; but many details preceding my own time are gathered from my father's garden catalogue, which, beginning in 1857, contains at that and later dates many entries of plants received from Mr. Richardson.

Dahlias were special favorites, both the pompon and show varieties, and in autumn his garden was ablaze with choice blooms of rich and delicate colors. I have a shingle on which he wrote in a firm, clear hand, in 1887, the year of his death, a list of the dahlias in the garden, some twenty-six varieties including seedlings; he also indicated the number of plants of each variety, which added up made forty-seven. His dahlias were always grown to a single stem and usually trained against the fence espalier fashion, as shown in Pl. 8. He raised many fine seedling dahlias, seven of which I named and they are as follows:

**Archibald Geike.** Dark maroon crimson, pompon, very round and full, two colors showing, perfectly double.

**Charles Lyell.** Rich garnet red, pompon, perfectly double, extremely regular and well formed.

[1] The flowers seen in the interior views, Pl. 6 and 7, were from his garden, or my own; but were placed there for his funeral services.

**E. Hitchcock**. Large blush pink, tall grower, perfectly double.

**Henry Rogers**. Blush pink, petals quilled, very high flower, round as a ball, perfectly double.

**J. D. Dana**. Extremely dark crimson, pompon, very round, perfectly double.

**J. D. Whitney**. Crimson, perfectly double, rather flat flower, but very evenly set, dwarf habit.

**Jules Marcou**. Rich scarlet crimson, large, perfectly double, great bloomer.

A First Class Certificate of Merit was awarded the Richardson seedling dahlias Archibald Geike, and Charles Lyell, by the Society at the Annual Exhibition, 16–19 September 1884. The names however were not mentioned in the report, Transactions of this Society for 1884, part 2, p. 216 and 238.

When Tigridias were in bloom his garden in the early morning was ablaze with hundreds of blooms of red, yellow, orange and white varieties, though always with the red centre. He was very successful in carrying the bulbs through the winter, which all are not.

*Ismene calithena* was a favorite bulb with Mr. Richardson and he grew them in quantities, some being seen in the foreground of Pl. 8. This is a much overlooked plant, as it has fine white fragrant flowers, rich, broad foliage, and is very easily grown. The bulbs are planted in the open ground in May and dug up after frost. They should be kept in a warm, dry place in winter as they are sensitive to frost and dampness.

Bulbs always had a special fascination for him and in spring his border of hardy bulbs was a treat to see with its masses of bloom. The bulb border on the south side of a high board fence, was about one hundred feet long, and eight or nine feet wide. Close to the fence were fine clumps of crown imperials, red or yellow; next in front the whole length of the bed was filled with hyacinths and tulips. In an old bed of course the hyacinths were not of exhibition grade, but they made a splendid mass of bloom that was a feast of perfume and color. In the foreground of the bed were thousands of *Scilla Sibirica*, crocuses, mainly yellow, and a few other kinds of bulbs that made

a wide ribbon of color. He said this bed had been essentially as I knew it for thirty years, and it made one of the finest displays I ever saw. Besides the bulb border, bulbs were planted in bunches all about the formal garden. Especially prominent on account of their abundance were snow-drops, *Narcissus bicolor* var. *Horsfieldi*, *N. cernuus*, *N. poeticus*, *Frittilaria meleagris*, *Scilla nonscripta*, pink and blue, and Bybloemen tulips. He was delighted with *Chionodoxa luciliæ* when he first saw it in bloom from bulbs his friend Mr. John C. Hovey gave him.

A rare and choice plant that he prized was the double white perennial rocket, *Hesperis matronalis* var. *flore pleno*, of which there were numerous clumps about the garden. It is a difficult plant to grow and yet he grew it without protection. When propagating he divided it in the early autumn. This plant, as shown by records, he grew for at least thirty years.

Auriculas are somewhat difficult plants to cultivate, but he had a patch in the open ground, the flowers of which were a beautiful bluish purple, with a white mealy eye. They were a constant pleasure when in bloom.

Fine masses of perennial candytuft, *Iberis semperrirens*, that he raised from seed were scattered about the garden, and made showy patches of whiteness.

Phloxes he admired especially and grew large masses of *Phlox subulata*, pink, white, and white with a pink eye. He grew also the delicate blue *Phlox divaricata*. The tall summer phloxes, *P. paniculata*, were a special interest to him and he raised many good ones from seed. A bed devoted to these seedlings was always an interesting spot. The dull or magenta colored flowers he hated; "gizzard colored," as he aptly and quaintly termed them. To suit him the head must be large and full, the individual blooms round and well filled out, not "wind-milly," as he termed those with radial gaps in the corolla.

There were many irises in his garden, German, Spanish, English, and a few species, of these last, *Iris pallida*, *Sibirica* and *cristata* were favorites.

One of his most valuable productions from seed was a choice double white *Deutzia crenata* that I have named *John Richardson*. The flowers are individually very large, perfectly double,

almost entirely free from any trace of pink in the outer petals, and a profuse bloomer. Another virtue of this fine seedling is its extreme hardiness. *Deutzia crenata* and its varieties are apt to winter-kill badly, but in twenty-two years' experience with this seedling, *John Richardson*, it has never been materially injured.

Christmas roses, *Helleborus niger*, were favorite plants with Mr. Richardson. He grew them outside without protection, and in a mild spell in winter they were often full of blooms. As usual he raised seedlings, but nothing noteworthy.

Peonies, being such an important feature, are treated under a separate heading.

### *Mr. Richardson's Peonies.*

Peonies were his special interest and he cherished them as the pride of the garden, which indeed they were. He grew *Pæonia tenuifolia*, both the single and the double form, *Pæonia officinalis* var. *rubra*, the double old garden favorite, and var. *alba*, the charming variety that is delicate pink on opening and turns white before fading. He also grew a few good tree peonies, but as far as known did not raise any seedlings of this class.

The *Pæonia albiflora* varieties, or Chinese peonies, were his specialty. He did not have a great many, some forty plants, at least in later years. In addition, however, he had his unbloomed seedlings, "candidates for fame," as he called them with a twinkle in his eye. After his death I took from his seed-bed some seventy-five unbloomed seedlings. This shows remarkable activity and a devotion to horticulture in a man nearly ninety years of age.

It was a treat to go into Mr. Richardson's garden with him in peony season. He would talk of his favorites with the spirit of an enthusiast, undimmed by advancing years, and even when not in bloom the flower in all its perfection was before his mind's eye and he would discuss them as he passed the plants in a walk about the garden.

A seedling peony had to be of high quality of excellence to meet his approval. He would have nothing else and singles or semi-doubles were discarded at once. Color and form to his

mind were of first importance as in other flowers; habit of growth was also an important character. It may be fairly said that an unusual number of his seedlings have a fine upright habit of growth, a most desirable feature. Another feature of Mr. Richardson's seedlings is their striking vigor of growth. In a collection of over two hundred varieties lately I was able to pick out the Richardson seedlings almost without exception by their superior size, and when mistaken it was because other varieties had a similar growth. In the measurements given in the following description of eighteen of his seedlings the average is thirty-seven and four-tenths inches in height from the ground to the flower, but not including the flower in the measurement. Records of peonies in his garden go back to 1857, when some fragrant forms are recorded, but for how much longer he had been growing them is not known. From 1857 to his death was thirty years, and in that period at least he was actively raising seedlings. According to George Paul peonies began to be cultivated by florists in England about 1840, and in 1855, so far as Paul could ascertain, there were twenty-four double varieties in the garden catalogues in England. In France and Belgium peonies were actively grown somewhat earlier, Paul says in France about 1824. It is seen therefore that Mr. Richardson's experience covered a large part of the period of active peony growing up to the time of his death.

The Richardson peonies are generally considered as late bloomers; but this is only partially true. Some seedlings are early as well as some late, so that they cover the whole season of this type. This year they were in bloom continuously, without a break, from the fourth of June into the early part of July, a full month. What the stock was from which he raised his remarkable seedlings is an interesting question, which cannot be answered with assurance. Most of his plants were seedlings as they were known to me. He had, however, a few good old peonies. Festiva (Donkelaer, 1838), which measured this year 28½ inches in height to the flower; Festiva Maxima (Miellez, 1851),[1] which

[1] Members of the American Peony Society, who have looked into the matter, say that Festiva Maxima originated with Miellez. Authorities differ however, as George Paul says: "In Belgium an amateur, M. Buyck, about 1835 produced, amongst others, Festiva Maxima."

measured 41½ inches to the flower; Pottsii Plena[1] (Calot? 1857), crimson, which measured 33½ inches to the flower, and a double white seedling raised by Mr. Carter of the Botanic Garden in Cambridge, which measured this year 36 inches to the flower. The foliage, habit and size of many of the Richardson seedlings resemble Festiva Maxima so closely that I am strongly of the opinion that they contain blood from that fine old standard. It is quite likely that the other varieties mentioned enter more or less into their composition.

To all who have grown them, Mr. Richardson's seedling peonies stand amongst the very best productions of this fine flower. As the late Francis Parkman, eminent historian and horticulturist, said to me: "They are unique." A judgment from one fitted by his own experience to express a critical opinion.

As already stated Mr. John Richardson did not name his seedlings, and even in peonies there are but few exceptions. These exceptions[2] are in varieties that he exhibited before the Society, when it is quite possible that he was requested to give them some name. These names he never afterward used so far as I am aware. Most of his seedling peonies were named by his friend Mr. John C. Hovey, who grew and exhibited them, or by myself. As there is so much confusion in nomenclature from duplication of names in common usage, I selected the names of eminent scientific men, hoping thus to avoid possible duplication. As many years ago I named and distributed some varieties already named without knowing that fact, I give my names as synonyms in such cases in the following description of the several varieties.

Mr. Thurlow states that Mr. Richardson bequeathed his peonies to Mr. John C. Hovey, but that is a mistake. Mr. Hovey received what peonies he had as a gift during Mr. Richardson's

[1] There are, as Mr. A. H. Fewkes writes me, no less than six peonies named Pottsii, or a variety of the same. Mr. Richardson's Pottsii is a rich deep crimson and double, though some stamens show in the centre. Individual blooms vary a good deal in the degree of doubleness, the extremes being almost perfectly double and semi-double, probably Calot's, 1857.

[2] By the records of the Society he exhibited under name the varieties Dorchester, and Rubra Superba. He also exhibited Perfection but without name.

life. Mr. Hovey when visiting me shortly before his death in 1894, on request dictated the names he had given and the descriptions of the Richardson seedlings in his possession. As this is an important matter to peony growers his description is given at this point.

*John C. Hovey's description of Richardson Peonies in his garden.*

"1. **Perfection**. Blush rose, Silver Medal, 23 June 1869. [For the change required in this name, see p. 183.]

"2. **Dorchester**. Bright rose, darker in centre. First Class Certificate of Merit, 9 July 1870.

"3. **Grandiflora**. Light rose, flat flower. First Class Certificate of Merit, 26 June 1883.

"4. **Rubra Superba**. Bright crimson carmine. First Class Certificate of Merit, 20 June 1871.

"5. **Norfolk**. Flowers large, cup shaped, light rose, darker centre, compact growing plant.

"6. **Francis B. Hayes**. Bright rose.

"7. **Cambridge**. Small bright rose, late. [Of this variety I have not been able to locate authentic specimens.]

"8. **John Richardson**. Small very double rose, like high Perfection, rose, blush edge.

"9. **Milton Hill**. Blush white, very double. First Class Certificate of Merit, 27 June 1891.

"These are all the Richardson seedlings that Mr. Hovey has."

## Description of Mr. Richardson's Seedling Peonies.

The following is a list with descriptions of the Richardson seedling peonies,[1] with synonyms where such exist and the awards they have received; these awards were all made by the Massachusetts Horticultural Society, so that for the sake of brevity the name of the Society is not further mentioned. The date of blooming this year is given, and also the height. The height was taken in August, and measures the distance from the

[1] A few posthumous seedlings that were single I have named, but as Mr. Richardson did not care for the singles, I omit them, also, though good, they are not distinct enough to be included in such a set.

ground to the calyx of the flower; with the flower, therefore, some inches would be added as a maximum height. The whole set of eighteen varieties was exhibited this year before the Society either on June 5, 11, or 21–22.

**Charles Sedgwick Minot.** Named by me. Clear satin pink, large very beautiful flower, guard petals broad, centre petals narrower, as long as guards, very high, round flower, perfectly double, no stamens or stigmas showing, very sweet scented, erect habit, a profuse bloomer. Posthumous seedling, in bloom 9 June 1904, height to flower 40 inches. Exhibited by me 11 June 1904, when it received a First Class Certificate of Merit. Named for Professor Charles Sedgwick Minot, embryologist, and a skilful grower of peonies.

**Dorchester.** Named by Mr. John Richardson (Synonym *George W. Tryon*). Light clear pink, cream color in centre, primrose yellow in centre when opening, sweet scented, perfectly double, no stamens or stigmas showing, medium sized flower, stands very erect on stem, free bloomer. In bloom 18 June 1904, height to flower 36 inches. Exhibited by Mr. Richardson, 9 July 1870, when it was awarded a First Class Certificate of Merit. Transactions of the Society for 1870, p. 51 and 96. Named for the locality in which it originated.

**Francis B. Hayes.** Named by Mr. John C. Hovey. Bright rose, perfectly double, no stamens or stigmas visible, central petals as long as guard petals, some laciniated petals with broad petals in centre, a fine bloomer, rather weak in the stem. In bloom 18 June 1904. Height to flower 27 inches, a measurement kindly sent me by Mrs. E. M. Gill. Named for the late Mr. Francis B. Hayes, a former President of this Society, and a patron of Horticulture.

**Ferdinand Stoliczka.** Named by me. Guard petals broad, a most delicate shell-pink, central petals narrower, erect, exquisite white, with a slight primrose cast, rounded at the tips, perfectly double, no stamens or stigmas showing, free bloomer, flowers erect, plant of vigorous growth, very choice. In bloom 10 June 1904, height to flower 27 inches; this measurement is inadequate as my plants had been recently moved and all the best blooms cut. A stronger plant in Dr. Walcott's garden measures 40½ inches to

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RICHARDSON SEEDLING : HENRY WOODWARD.

the flower. Exhibited by me 11 June 1904, when it received a First Class Certificate of Merit. Named for Ferdinand Stoliczka, a European palæontologist.

**George B. Sowerby.** Named by me. Guard petals delicate pink, in a flat row like a saucer, inner petals long, narrower, wrinkled, laciniated, white shaded yellow, very double, no stamens, but the stigmas are visible in centre when fully opened, very vigorous, free bloomer. Mr. Richardson aptly compared it to ice cream in a pink saucer. Very early, in bloom 4 June 1904, blooms have been supplied for decorations when no other Chinese peonies were to be found in the market, height to flower 39½ inches. Not one of the best of Mr. Richardson's seedlings, but desirable on account of its earliness and is a fine flower. Named for George B. Sowerby, an English conchologist.

**Grandiflora.** Named by Mr. John C. Hovey (synonym *Alpheus Hyatt*). Beautiful light rose pink, cupped in opening, quite flat when fully opened, petals nearly uniform throughout, very large, I have had flowers measuring nine inches in diameter. Flowers tend to bend over from their own weight and a not very rigid stem, perfectly double, no stamens or stigmas showing, a splendid flower. In bloom 15 June 1904, height to flower 43½ inches. Exhibited by Mr. John C. Hovey, 26 June 1883, when it received a First Class Certificate of Merit. Transactions of the Society for 1883, Part 2, p. 222 and 252. Named for its size, perhaps the greatest in diameter of any of the Richardson seedlings.

**H. A. Hagen.** Named by me. Bright, clear pink, cupped, exquisite color, perfectly double, no stamens or stigmas visible, all petals of a uniform color, flowers stand up very erect on the plant, quite close to "Norfolk"; but more uniform in color throughout. Posthumous seedling of Mr. Richardson's. In bloom 17 June 1904, height to flower 32½ inches. Named for the late Dr. H. A. Hagen, entomologist.

**Henry Woodward.** (Pl. 9.) Named by me. Light blush pink, lighter in centre, very large, rather flat flower, perfectly double, no stamens or stigmas visible, of good habit, but not as erect as some others. In bloom 21 June 1904, height to flower 42½ inches. Named for Dr. Henry Woodward, an English

palæontologist. A good figure of this peony, here reproduced, is given by Miller.

**Isaac Lea.** Rose pink with a slight purplish cast, perfectly double, under good culture develops some very large flowers. A good bloomer. In bloom 18 June 1904, height to flower 37½ inches. Named for Isaac Lea, an American conchologist.

**John Richardson.** Named by Mr. John C. Hovey for the originator of these choice peonies (synonym *Sven Lovén*). Blush rose, very double, fine form, color uniform throughout, no stamens or stigmas visible, erect habit. In bloom 18 June 1904, height to flower 40¼ inches. Exhibited by me, 21 June 1904, when it received a First Class Certificate of Merit.

**Milton Hill.** (Pl. 10.) Named by Mr. John C. Hovey (synonym *Augustus A. Gould*). Flowers large, clear, soft flesh color throughout, a little pinker if shaded, or opened in the house, turns nearly white in the sun. Centre creamy in the opening bud, cupped in form, central petals set like a rose, perfectly double, no stamens or stigmas visible. A wonderfully beautiful flower, one of the choicest of known peonies. Plant of fine erect habit, and a good bloomer. Exhibited by John C. Hovey, 27 June 1891, when it received a First Class Certificate of Merit. Transactions of the Society for 1891, part 2, p. 276 and 295. In the Transactions, p. 276, the description reads, "with a few dark crimson markings in the centre." These markings must be very exceptional in this variety, as I have grown it since 1884 and have never seen crimson markings on any part of the flower. A late variety, in bloom 21 June, 1904, and considerably later, height to flower 33 inches. Named for Milton Hill, one of the most beautiful suburbs of Boston.

**Norfolk.** (Pl. 11, from a photograph kindly furnished by Mr. J. Woodward Manning.) Named by John C. Hovey (synonym *F. M. Balfour*). Flowers large, cup shaped, light rose pink, darker in centre, an extremely beautiful color. Perfectly double, no stamens or stigmas showing, a profuse bloomer, plant of good habit, one of the choicest of the Richardson seedlings. In bloom 18 June 1904, height to flower 35½ inches. Named Norfolk for the county in which the town of Dorchester (now part of the city of Boston) is situated.

RICHARDSON SEEDLING - MILTON HILL

RICHARDSON SEEDLING : NORFOLK.

**Paul Fischer**. Named by me. Bright rose pink, perfectly double, cupped, no stamens or stigmas visible, especially attractive in the opening bud, medium sized flower, free bloomer, very erect. Foliage broad, vigorous and very distinct in character. This variety has unfortunately a tendency to be bull-headed, which is a serious fault, but it is such a distinct variety and yields such attractive flowers that it is well worth growing in spite of this fault. In bloom 9 June 1904, height to flower 32 inches. Named for Paul Fischer, a French conchologist.

**Richardson's Perfection**. Named *Perfection* by Mr. Richardson or Mr. John C. Hovey; which. is not certain. As another and older European variety is called *Queen's Perfection*, and in catalogues is usually listed under the name "Perfection," I throw out the name of the present variety as practically a duplication, *and alter the name to Richardson's Perfection*, thus retaining the original name yet giving it a distinctive standing. (Synonym *Karl A. Zittel.*) Flowers medium sized, light blush pink, lighter in centre, shaded to yellow at base of central petals. Perfectly double, no stamens or stigmas visible. A full high flower, fragrant, of very upright habit, and a free bloomer, an extremely choice all round peony. Bud before opening very high as are many of the Richardson seedlings, and with a curious dull green calyx striped with darker green. In bloom 19 June 1904, height to flower 38½ inches. Exhibited by Mr. Richardson 23 June 1869, when it was awarded a Silver Medal. Transactions of the Society for 1869, p. 34 and 66. In the Transactions the name *Perfection* does not appear, but we read, "John Richardson showed a fine seedling herbaceous peony (no. 1)." The name therefore was probably added later, very possibly by Mr. Hovey. The Society record also reads, "of the many named varieties in cultivation but few equal this." The name combines that of the originator, with the quality, well expressed by the word Perfection.

**R. P. Whitfield**. Named by me. Light pink, shaded to lighter in centre, rather flat flower, perfectly double, no stamens or stigmas visible, free bloomer. In bloom 20 June 1904, height to flower 40 inches. Named for Prof. R. P. Whitfield, palæontologist in the American Museum, New York.

**Rubra Superba.** Named by Mr. John Richardson (synonym *W. G. Binney*). Bright crimson carmine, with no trace of purple tinge, a fine clear color, uniform color throughout, all petals rose-shaped, cupped, no stamens or stigmas visible, flower of good size, fragrant, very erect, plant robust. Considered one of the best of all crimson peonies and the only one of this color in the set. In bloom 17 June 1904, and much later, height to flower 41 inches. Exhibited by Mr. Richardson 20 June 1871, when it received a First Class Certificate of Merit. Transactions of the Society for 1871, p. 64 and 111. Named for its color and quality.

**Samuel Henshaw.** (Pl. 12.) Named by me. Outer petals clear rose pink, tinged with white, inner petals pink and white intermingled, the white predominating, very large and full flower, a little low in the centre, in hot sun turns nearly or quite white throughout. Very large and of wonderful vigor, the stem nearly as large as a lady's little finger, stands upright through heavy wind and rain unharmed, of very distinctive character. To get best results it should be shaded from hot sun, disbudded and freely manured. It is then a magnificent peony. In bloom 20 June 1904, height to flower 34 inches; the tallest blooms much exceeded this measurement, but had been cut for exhibition. Exhibited by me 21 June 1904, when it was awarded a Silver Medal. Posthumous seedling of Mr. Richardson's, named for Mr. Samuel Henshaw, entomologist and Curator of the Museum of Comparative Zoölogy, at Harvard University. (See p. 190).

**Walter Faxon.** Clear bright pink, brighter in centre, the most exquisite shade of pink I have seen in a peony, very double, but a few stamens show in the centre, no stigmas visible, cupped, a profuse bloomer. Lateral buds develop with the leading buds, so that beautiful clusters are produced. One of the very best and most distinctive of Mr. Richardson's choice productions. In bloom 15 June 1904, height to flower 40½ inches. Exhibited by me 21 June 1904, when it received a First Class Certificate of Merit. Named for Dr. Walter Faxon, zoölogist.

RICHARDSON SEEDLING — SAMUEL HENSHAW.

## Plants in Mr. Richardson's Garden.

A list of plants in Mr. Richardson's garden in 1887, the year of his death; taken from a list I prepared at that time.

*Achillea tomentosa.*
*Achimenes.*
*Acidanthera bicolor.*
*Aconitum Napellus.*
*Actaea spicata* var. *rubra.*
*Adiantum pedatum.*
*Adlumia cirrhosa.*
*Adonis vernalis*, in quantity and seedlings.
*Allium*, several species.
*Alyssum saxatile.*
*Amaryllis Belladonna.*
" *formosissima.*
" *Hallii.*
*Anemone Japonica.*
" *Pennsylvanica.*
*Antirrhinum*, annuals.
*Aquilegia chrysantha.*
" hybrids.
*Arabis albida.*
" " var. *variegata.*
*Asters*, a few perennial natives and garden annuals.
*Aspidium acrostichoides.*
*Astilbe Japonica.*
*Astrantia major.*
*Azalea viscosa.*
*Begonias*, a few house varieties.
*Brodiæa congesta.*
*Buxus sempervirens*, as box edging.
*Calycanthus Florida*, including seedlings.
*Campanula Carpatica*, blue and white.
*Campanula medium* (Canterbury bells), blue and white in quantity.
*Campanula persicifolia*, blue and white
*Campanula rotundifolia.*
*Cassia Marylandica.*
*Chionodoxa luciliæ.*
*Clematis Alpina.*
" garden varieties.
*Colchicum autumnale.*
" *variegatum.*
*Convallaria majalis.*
*Cornus Mas.*
*Crocuses*, in profusion, especially yellow.
*Dahlias*, double, of which he was very fond, some 26 varieties, including seedlings.
*Delphinium formosum.*
*Deutzia crenata*, double seedlings, including the seedling which I named "John Richardson."
*Deutzia gracilis.*
*Dianthus barbatus* vars.
" in variety.
*Dicentra spectabilis.*
*Dictamnus fraxinella*, purple and white.
*Digitalis purpurea*, pink and white in quantity.
*Dodecatheon Meadia*, rose and white.
*Euonymus radicans* var. *variegata*
*Eupatorium ageratoides.*
*Freesia refracta*, in the house in winter.
*Fritillaria imperialis*, yellow and red.
*Fritillaria Meleagris*, red and white, and seedlings.
*Funkia ovata.*
" *subcordata.*
*Fuschsias*, in variety, a favorite with him.
*Galium asprellum.*

*Gentiana acaulis.*
*Geranium sanguineum.*
*Gladiolus gandavensis*, varieties.
*Globularia vulgaris.*
*Helleborus niger*, in abundance, including seedlings.
*Hemerocallis flava.*
" *fulva* var. *variegata.*
*Hepatica triloba.*
*Hesperis matronalis* var. *flore pleno alba*, a choice, rare old plant, in abundance.
*Hyacinthus amethystinus.*
" *botryoides*, blue and white.
" *candicans.*
" *monstrosus.*
" *moschatus.*
" *orientalis*, garden varieties in quantity.
*Hypericum Kalmianum.*
*Iberis sempervirens*, a seedling of fine quality.
*Iris anglica*, varieties.
" *cristata.*
" *Germanica*, varieties.
" *Hispanica*, varieties.
" *pallida.*
" *Sibirica.*
" *Sibirica* var. *sanguinea.*
" *Virginiana.*
*Ismene calithena*, in quantity.
*Kalmia latifolia.*
*Lantanas*, several in pots.
*Leucojum vernum.*
*Lilium canadense.*
" *candidum*, in quantity.
" *lancifolium*, in quantity.
" *longiflorum.*
" *martagon* var. *album.*
" *Philadelphicum.*
" *superbum.*
" *tenuifolium*, a special favorite.
*Lobelia cardinalis.*
*Lonicera*, several vines trained on buildings.
*Lychnis chalcedonica*, single and double.
*Lychnis Haageana.*
*Mertensia virginica.*
*Miila biflora.*
*Montbretia crocosmiæflora.*
*Myosotis palustris.*
*Narcissus bicolor* var. *Horsfieldi*, a favorite, in quantity.
*Narcissus biflorus.*
" *cernuus*, a charming early species, too little known.
*Narcissus* var. *Emperor* and *Empress.*
" *odorus* var. *Campernelle.*
" *poeticus*, in quantity.
*Opuntia* sp. hardy.
*Pœonia albiflora*, a few old varieties; Festiva, Festiva Maxima, Potsii-plena, numerous choice seedlings as described, and at the time of his death about 75 unbloomed seedlings.
*Pœonia Moutan*, several good varieties.
*Pœonia officinalis* var. *rubra.*
" " " *alba.*
" *tenuifolia*, single.
" " double.
*Papaver orientale.*
*Pelargoniums*, a few garden varieties.
*Phegopteris Dryopteris.*
*Philadelphus coronaria.*
*Phlox divaricata.*
" *paniculata*, some fine varieties and seedlings, always seedlings coming on.
*Phlox subulata*, several varieties.
*Platycodon grandiflorum*, blue and white, in quantity.
*Polemonium reptans.*
*Polygonatum giganteum.*
*Primula auricula.*
" *officinalis.*
*Rosa rugosa.*
" *setigera.*
" dwarf Scotch, white.

*Roses*, several hybrid perpetuals, also old-fashioned June roses.
*Scilla nonscripta*, blue, white and pink in abundance.
*Scilla Sibirica*, in profusion.
*Sanguinaria Canadensis*.
*Saxifraga peltata*.
*Sedum Nevii*.
" *spectabilis*.
*Seriocarpus solidagineus*.
*Spiræa filipendula*.
" " var. *flore pleno*.
" *prunifolia*.
" *ulmaria*.
*Stellaria holostea*.
*Syringa Persica*.
" *vulgaris*, purple and white.
*Taxus baccata* var. *Canadensis*.
*Thalictrum anemonoides*.
*Thymus serpyllum*.
*Tigridias*, lemon, orange, crimson, and white, in profusion.
*Trillium erythrocarpum*.
" *grandiflorum*, in large clumps, a special favorite.
*Tulips*, many garden varieties in abundance.
*Veronica*, two species.
*Viburnum opulus*.
*Viola*, several species.
*Weigelia rosea*.
*Yucca filamentosa*.
*Zephyranthes rosea*.

## History of the Richardson (Everett) House and Associated Houses, with some Account of their Owners.

The history of the Richardson or Everett House, as we will now call it, and the historical houses with which it is intimately associated is so interesting, both during colonial and later times, that it is well worth consideration. I write it the more freely because it can only be gathered by consulting a number of sources of information, and collating the same.

Mr. James H. Stark of Dorchester, who has done much by his publications to perpetuate the old landmarks and records of Boston, worked out a careful history of the several owners and residents of the Everett House. Records from the Registry of Deeds are given in his paper, but as they are in print it did not seem necessary to repeat them. Further information was gathered from Paige, Oliver, Harris and other sources as noted.

"Abont 1737, Robert Oliver, a wealthy planter from Antigua [West Indies], settled in Dorchester. ....[William H. Whitmore cites records of purchases of land in Dorchester by Robert Oliver in 1738, and at later dates, and a petition by him in 1739 as a house owner to the town of Dorchester.] He brought a wife,

Anne[1], and one son Thomas, who became later the last Lieutenant-Governor of the Province of Massachusetts. .... Robert bought a number of pieces of land [in Dorchester], of which 30 acres had been the property of Comfort Foster; and on this homestead lot, he built in 1745, a fine mansion which took the place of a more modest house. [Pl. 2].... Tradition records that he brought many black slaves with him, and dwells with scornful pity upon the fact that they carried burdens on their heads in ignorance of the proper use of a Yankee wheelbarrow." (Stark). Three of his slaves, named Ann, Cambridge and Betty, according to Trask are buried in the old North Cemetery in Dorchester. In his paper Trask comments on Oliver's slaves, and their method of working.

"Robert Oliver, Esq., 3rd son of Colonel Richard Oliver of Antigua .... married at St. Johns [Antigua] 3 Feb. 1722, Ann Brown, dau. of James Brown of Antigua by Eliz.[abeth] his wife, which Eliz.[abeth] Brown, Wid. married 2ndly in 1707, Isaac Royall of Antigua."[2] Robert and Ann Oliver had children, James baptized 19 Feb. 1729/30 at St. Johns; Thomas born 5 Jan. 1733/4 at Antigua; Samuel, baptized 20 Jan. 1734/5 at St. Johns; Ann, baptized 22 Oct. 1724 at St. Johns [James, Samuel and Ann probably all died young]; Isaac, born 20 September 1738; Elizabeth, born 13 October 1741, and Richard, born 19th May 1744, the last three all in Dorchester. Robert Oliver's wife died 20 December 1751, and he died 16 December 1762 (dates from Oliver, vol. 2, and Dorchester Births, Marriages and Deaths). "The Boston Post-Boy for December 20 1762 has the following brief obituary. Thursday morning last, died at his Seat in Dorchester, in the 63d Year of his Age, Col. Robert Oliver. A Gentleman of an extensive Acquaintance, remarkable for his Hospitality to All, was Kind to the Poor, and in his Military Character belov'd and esteem'd: his Family and Neighbors have met with a great Loss in this Bereavment. His Remains are to be interr'd Tomorrow at 3 o'clock in the Family Tomb at Dorchester." (Stark.)

[1] Oliver, Paige and other authorities usually spell the name Ann.

[2] Oliver, vol. 1, p. 76–77, vol. 2, p. 346–347. He gives records of both marriages from the Parish Register at St. John.

Thomas Oliver, son of Robert, graduated from Harvard College 1753, taking the degrees of A. B. and A. M. He married Elizabeth, daughter of Colonel John Vassall, Senior, of Cambridge in 1760 (Paige, p. 619), Thomas's sister as stated marrying Colonel John Vassall the Second in the following year, thus making a double marriage between the two families. Thomas and Elizabeth Oliver had children, Ann, born 17 November 1763; Elizabeth, born 12 July 1766, in Dorchester (Dorchester Births, Marriages and Deaths); Penelope, baptized 2 October 1768, in Cambridge, where in the records of Christs Church are recorded the baptisms of all three children (Harris, in the Vassalls of N. E.). There were also three other children, Mary, Lucy and Frances. Thomas Oliver's wife Elizabeth died after he went to England and he married 3 June 1781 at St. Johns, Antigua, Harriet, only child and heir of the Hon. Byam Freeman of Antigua. By his second wife he had Harriet Watkins and Emily Freeman. (Oliver, vol. 3, p. 346–347).

"Robert Oliver in his will gave his son Thomas, a suit of mourning, a ring and twenty shillings, and no more, because Thomas's grandfather James Brown and his great-uncle Robert Oliver had already given him a greater estate than the father could." (Stark).

Probably on account of close relations with the Vassall and other families resident in Cambridge, in 1766 Oliver moved to that town. "Thomas Oliver disposed of his property in Dorchester when he went to Cambridge. On July 1, 1766 . . . . he sold to Ebenezer and Lemuel Clap, about thirty-nine acres of land, reserving only the mansion-house and barn, and the land in front of it. This lot with the reservation covered almost precisely the original possession of Comfort Foster . . . . We do not know who occupied the Oliver house for the next few years, but on 11 May, 1770, . . . . Thomas Oliver sold the house etc. with three and one half acres of land, for £250 to Richard Lechmere [of Cambridge] giving him also about half an acre on the south front . . . . [the "triangle," of fig. 8]. Richard Lechmere was the uncle by marriage of Oliver's wife, he having married Mary Phips, whose sister Elizabeth married Col. John Vassall." (Stark.)

"We will now trace the house and land. Richard Lechmere sold them 15 January 1771, to Ezekial Lewis .... Lewis sold them 4 April 1771 .... to John Vassall [brother-in-law of Thomas Oliver]. Vassall was a Royalist and a refugee, and was banished by act of the Legislature, his property being confiscated. On June 12, 1781, .... Richard Cranch, Samuel Henshaw and Samuel Barrett, a committee for such purposes, sold the property to John Williams. .... [John Williams executors] on November 24, 1786, sold it to Bossinger Foster, .... Bossinger Foster sold it to Lucretia Callahan, November 2, 1787, .... John and Lucretia Callahan sold it to Oliver Everett, November 10, 1792." (Stark.)

It is an interesting coincidence that one of the choice seedling peonies raised by Mr. John Richardson, more than a hundred years later on these grounds, is named Samuel Henshaw, in honor of the gentleman who is the great-grandson of Samuel Henshaw mentioned in the preceding paragraph (see p. 184).

"Rev. Oliver Everett died on November 19th, 1802. The following spring his widow with her family removed to Boston. From this time, until it was sold by Edward Everett, no members of the family resided there, it being leased to various persons." (Stark.)

George Richardson leased the house of Mrs. Everett first in the spring of 1819. "Edward Everett sold it to George Richardson November 10, 1833." (Stark). Mr. George Richardson's account book says 1 October 1833, but Stark's date refers to the date when papers were officially recorded. John Richardson inherited the estate from his brother George in 1861, and on the death of John Richardson his executors sold the house and part of the estate to William Stanford Stevens "October 19, 1888" (Stark). As stated (p. 171), the "triangle," a piece of land lying between Pond and Cottage Streets (fig. 8), which was originally part of the Oliver estate, was not purchased from the Everetts, but was purchased at auction by George Richardson in 1841. John Richardson bequeathed "the triangle" to the city of Boston "to be used as a park or any other purpose except being sold for house lots." (John Richardson's will). For description and illustrations of the Everett house, see pages 167 to 171, figures 8 to 10 and plates 2 to 8.

"Thomas Oliver remained for several years in Dorchester after his father's death" (Stark), "until 1766, when he purchased an estate on Elmwood Avenue, near Mount Auburn [Cambridge], and erected the mansion afterwards the residence of Gov. Gerry, and .... James Russell Lowell." (Paige, p. 619). Pl. 13.

Drake (p. 318) questions whether Oliver built the Lowell house, as he says: "It has often been stated that this house was built by Colonel Thomas Oliver .... about 1760; but as the estate was only leased by him until the year 1770, when he acquired the title by purchase of the heirs of John Stratton, of Watertown, we do not give full credence to the assertion .... Moreover, in the conveyance to Oliver the messuage itself is named." Oliver purchased a number of parcels of real estate in Cambridge, part of which are considered in the following. He purchased, 8 October 1766 (Middlesex Deeds, Book 66, p. 375), of Christopher Grant thirty-eight acres in this vicinity, among which was a parcel of land with a dwelling house and barn, consisting of six acres, bounding easterly and southerly on the Great Road leading to Watertown [*i. e.* the corner of Elmwood Avenue and Mt. Auburn Street], westerly on land of Seth Hastings, and northerly on land of Joseph Palmer. [This parcel of six acres purchased of Grant, from its location and size, necessarily included the site of the Lowell house]. Oliver purchased, 31 March 1767 (Middlesex Deeds, Book 66, p. 624), of Joseph Palmer fifteen acres bounding easterly on the Great Road leading to Watertown [now Elmwood Avenue], southerly on land Thomas Oliver bought of Christopher Grant, westerly on land of Seth Hastings, and northerly on land of Samuel Thacher and George Ruggles. In 1770 (Middlesex Deeds, Book 70, p. 134) Oliver leased of the widow, and in the same year purchased (Book 71, p. 9, 11, 12) of the heirs of John Stratton[1] a certain messuage and parcel of land containing about seventeen acres, lying on the northerly side of the present Mt. Auburn Street,

[1]John Stratton "married Mercy Norcross 3 May 1750." (Paige) His widow later married Christopher Grant, from whom Oliver bought land in 1766. Grant's name appears in both the deed of 1766, and the lease of 1770, in the deed in his own right, and in the lease as the husband of his wife, widow of Stratton, to whom the land had been assigned as dower.

and extending to Fresh Pond. This is evidently the *messuage* and land referred to by Drake, but could not include the present Lowell house, which must stand on the land purchased of Grant in 1766. John Stratton's land was farther to the westward on Mt. Auburn Street; Seth Hastings's land of forty acres extending from Mt. Auburn Street to Fresh Pond, and immediately adjoining Oliver's land on the west, as recited in Grant's deed to Oliver. I find no evidence that Christopher Grant was a man of wealth, so that there is no great probability of his having owned or built such a house. The Lowell house, while not resembling the Everett house closely, has a roof balustrade with flames, and in the interior finish has dadoes, wainscoting and carved banisters which are very similar to those of the Everett house. If not a direct imitation, these similarities at least indicate a near period of construction to that of the Everett house, which Thomas's father built in 1745. It seems therefore that all the evidence favors the view that Thomas Oliver tore down the house standing on land purchased of Grant in 1766 and built the mansion now known as the Lowell house. In the deed from Grant, Thomas Oliver is described as of Dorchester, whereas in all subsequent deeds as of Cambridge. The details of Oliver's purchases gathered from the Registry of Deeds are facts kindly furnished me by Henry M. Spelman, Esq., of Cambridge.

Continuing with the account of Thomas Oliver: "Being a man of fortune, he was not actively engaged in business; nor did he mingle in the stormy political contests of that eventful period, until, in a day fatal to his peace and quiet, he accepted the office of Lieutenant-governor of the Province [of Massachusetts], and President of a Council appointed by the King in a manner particularly obnoxious to popular resentment. On the morning of 2 Sept. 1774, a large number of Middlesex free-holders (Gov. Oliver says about four thousand, assembled at Cambridge, and induced the recently appointed Mandamus Councillors to renounce their offices. The President of the Council was not spared; but, though he urgently requested delay, inasmuch as he could not with propriety renounce that office, while he held that of Lieut-gov., yet he finally yielded, and signed a solemn engagement 'as a man of honor and a Christian,' that he would

THOMAS OLIVER'S HOUSE IN CAMBRIDGE, LATER THE RESIDENCE OF ELBRIDGE GERRY, AND JAMES RUSSELL LOWELL.

'never hereafter, upon any terms whatsoever, accept a seat at said Board, on the present novel and oppressive plan of government.' He left Cambridge immediately, and never returned. At the evacuation of Boston he accompanied the British forces, soon went to England, and d. at Bristol [England] 20 Nov. 1815, a. 82." (Paige, p. 619–620.) "Though he forfeited a large estate here, he was wealthy from his possessions in the West Indies; still owned by his descendents." (Stark.) "Lieutenant Governor Oliver was a quiet, reserved man, but little known in public life, though ever distinguished by his amiable and gentlemanly grace." (Harris, Vassalls of N. E., p. 124.)

Continuing the consideration of Thomas Oliver's house in Cambridge (Pl. 13). "The house was one of a succession of spacious dwellings set in broad fields, bordering the Charles River, built in the eighteenth century, and occupied for the most part, before the War of Independence, by loyal merchants and officers of the Crown .... the owners of these estates left them, one by one, as they were forced out by the revolt of the province: but the name of Tory Row lingered about the group .... [Oliver's house in Cambridge after his leaving] with others in the neighborhood, was seized for public use. When the American army was posted in Cambridge it was used as a hospital for soldiers .... ["It being represented that the present hospital is not large enough to contain the sick, Lieut.-gov. Oliver's house is to be cleared for that purpose, and care to be taken that no injury is done to it." (Paige, p. 418). To this "care" we doubtless owe much for its good preservation]. Subsequently the estate was confiscated and sold by the Commonwealth .... The purchaser was Arthur Cabot, of Salem,[1] who later sold it to Elbridge Gerry, Governor of Massachusetts from 1810–1812, and Vice-President of the United States under Madison, from 4 March, 1813, until his sudden death, 23 November, 1814 .... In 1818 .... the homestead and some ten acres of land, was sold by Gerry's heirs to the Rev. Charles Lowell." (Scudder, p. 1, 2, 5, 6.) His eminent and youngest son, James Russell Lowell was

[1] Mr. Scudder says Arthur Cabot of Salem, but official records (Middlesex Deeds, Book 95, p. 338) say Andrew Cabot of Beverly.

born there in 1819. Elmwood, as Lowell called it, was his life long, cherished home, and was immortalized by his pen.

Thomas and Elizabeth Oliver as stated married respectively a daughter and a son of Colonel John Vassall, and this association is of great interest. Colonel John Vassall, Senior, son of Major Leonard Vassall, was born in the West Indies 7 September 1713, and graduated from Harvard College 1732 [taking the degrees of A.B. and A.M.]. He married Elizabeth, daughter of Lieutenant Governor Spencer Phips, 10 October 1734; she died 22 September 1739, and he married Lucy, only daughter of Jonathan Barron, of Chelmsford. His children were Ruth, born 14 July 1737, who married Edward Davis of Boston; John, born 12 June 1738 who married Elizabeth Oliver of Dorchester; Elizabeth born 12 September 1739, who married Thomas Oliver of Dorchester, 11 June 1760; Lucy born 15 November 1747, who married John Lavicourt of Antigua. Colonel John Vassall the father bought, 26 July 1736, a house and seven acres of land at the westerly corner of Brattle and Ash Streets, Cambridge, which estate he sold 30 December 1741 to his brother Henry, having probably, in the mean time, either erected or much enlarged the house. This house, which is still standing, is one of the fine old mansions of Cambridge, and is known as the Henry Vassall house, or the Governor Belcher house. Colonel John Vassall later, 17 January 1746, bought six and a half acres on the opposite side of Brattle Street on which the Longfellow house was later built by his son. He died 27 November 1747 [and his tomb is a prominent feature in the old burying ground in Cambridge [1]]. (Paige, p. 674–675).

Henry Vassall, the brother of John, as noted above, "was born in the West Indies 25 December 1721, and married Penelope, the daughter of Isaac Royall, of Medford, 28 January 1742. (Paige, p. 675). As Mrs. Royall was the grandmother of Thomas Oliver (p. 188) her daughter who married Henry Vassall was consequently the aunt of Thomas Oliver and also half-sister to Thomas's mother, Mrs. Robert Oliver of Dorchester.

John Vassall, Second, the son of John Vassall, Senior, born in

[1] Figured by Freese (p. 9).

1738, graduated from Harvard College, 1757, ten years after his father's death and married Elizabeth the daughter of Robert Oliver and sister of Thomas Oliver, the 12 June 1761, and had John, born 7 May 1762; Spencer Thomas, born 7 April 1764; Thomas Oliver, born 12 April 1766; Elizabeth baptized 5 July 1767; Robert Oliver, born 28 May 1769; Elizabeth, born 5 May 1771; Leonard, born 1773; and Mary, born in London 26 March 1777. (Paige, p. 675.)

John Vassall, Second, about the time he married Elizabeth Oliver (Drake says about 1759): On the estate originally inherited from his father and by subsequent purchases greatly enlarged erected the splendid mansion[1] (Harris[2]), which was known later as the Washington Headquarters and for many years the homestead of Longfellow. Vassall abandoned it at the commencement of the Revolution and fled with his family to England where he died suddenly 2 October 1797. (Paige, p. 675.)

After Mt. Vernon this house (Pl. 14) is perhaps the best known house in America. A number of good exterior and interior views of the house and grounds have been recently published by Capen, and Holtzoper gives a fine plate of the main doorway. A most interesting account of the various occupants of the house is given by Drake, from which the following facts are taken. Colonel John Vassall, in 1775 became a refugee and retired to England. During the Revolution Colonel John Glover of Marblehead with his famous Marblehead regiment occupied the house as headquarters for a period, it then for eight months became the residence and headquarters of Washington until April 1776. After the war it was occupied by Nathaniel Tracy of Newburyport, who was a brother of my great-grandmother. Then by Thomas Russell; Dr. Andrew Craigie; Jared Sparks, the historian; Edward Everett, while a professor in Harvard College; Willard; Phillips; and Worcester, the lexicographer. In 1837 the poet Longfellow became an inmate, with Mrs. Craigie for landlady, and it was thereafter his beloved home. Washington and Longfellow both

[1] Drake says, p. 292, that the house was erected by John Vassall, whose tomb is in the Cambridge Cemetery, but this is an error as he died in 1747.

[2] Harris, in his Vassalls of New England gives very full accounts of land purchases of the family.

occupied as their bed-chamber the southeast room, the right hand of the figure. From this room emanated thoughts of war and thoughts of peace that stirred a nation to its depths.

Still another famous house is closely associated with the Olivers and therefore with the Everett house in Dorchester, namely the Isaac Royall house in Medford, Pl. 14. Freese gives a delightful view of the house, taken in summer, and Holtzoper figures in detail the doorways on the front and rear of the house. Mrs. Robert Oliver was a daughter of James Brown, of Antigua (p. 188), her mother, Mrs. James Brown, after her husband's death married in 1707 Isaac Royall,[1] a wealthy merchant of Antigua. According to Harris, Isaac Royall in 1732 purchased of the heirs of Lieutenant Governor Usher an estate in Charlestown (Medford) containing about five hundred acres; the house still standing, and widely known as the Royall Mansion was built by Usher. Although the conveyance was dated 1732, Harris says there is evidence that Royall did not occupy his Medford property until some years later. The interior of this house is perhaps the most beautifully ornamented of any old house of its period in this vicinity. Slave quarters were built near the house and the grounds laid out in elegant taste with fruit trees, shrubbery, garden, etc. Isaac Royall died 7 June 1739, and his widow in 1747. According to Drake, she was interred from Colonel Oliver's house in Dorchester [Mrs. Oliver being her daughter], and is buried in the tomb with her husband in the old burying ground in that town. In the tomb are interred William Royall, of Maine, his son Isaac, Senior, the latter's wife, and other members of the family.

[1] Isaac Royall, son of William, of North Yarmouth, Maine, and later Dorchester, Mass., married 1 July 1697 in Boston, Elizabeth, widow of one Oliver, and daughter of Asaph Eliot. They had one child, Asaph that died in infancy. Harris in his account of the family cites this marriage and birth, but overlooked a second marriage. Oliver shows that Isaac Royall married secondly, Elizabeth, widow of James Brown, at Antigua, 3 (? June) 1707, and quotes the Parish Register at St. Johns in proof. The fact that Isaac's second wife had the same given name as the first fostered the oversight. Isaac's second wife therefore was the mother of Isaac, Second; and Penelope, who married Henry Vassall; not his first wife, as stated by Harris.

JOHN VASSALL'S HOUSE IN CAMBRIDGE; LATER OCCUPIED BY WASHINGTON, AND THE HOME OF THE POET LONGFELLOW.

ISAAC ROYALL HOUSE IN MEDFORD.

The monument at the Royall tomb, in the old cemetery at Upham's Corner, Dorchester, consists of a horizontal slab of marble supported by five sandstone columns. The slab bears a coat of arms consisting of three sheaves of wheat enclosed in a scroll and the following inscription; part of which is nearly effaced by weathering.

"Here lyeth $^{e}_{y}$ Body of WILL$^{M}$ ROYALL | of North Yarmouth, in the PROVINCE | of MAIN. who departed this Life, | Nov$^{br}$ $^{e}_{y}$ 7TH 1724 in $^{e}_{y}$ 85TH Year of his Age | this Stone is Erected, to $^{e}_{y}$ Pious Memory | of his Father, by his Eldest Son ISAAC | as the last Act of a dutifull remembrance" |

"Here lyes the Body | of the Hon$^{ble}$ ISAAC ROYALL Esq$^{r}$ | Who departed this Life at his Seat in Charlestown | June $^{e}_{y}$ $^{th}_{7}$ Anno Dom$^{ni}$ 1739 Ætatis 67. | He was a gent$^{n}$ of Superior natural powers & great acquired knowledge | Civil affable courteous & Just to all Men | Remarkably Dutifull to his Parents, Kind to his Relations & Charitable to $^{e}_{y}$ Poor. | He was a faithful Husband a tender Father a Kind Master & a True Friend | Delighted in doing good. | He was highly esteemed & respected during his residence at *Antigua* which was near 40 Years | and advanced to $^{e}_{y}$ most Honourable & important Publick employments Civil & Military | Which He discharged with $^{e}_{y}$ highest reputation & fidelity | He Returned with His Family to *New England* His Native Country | July 27 1737 | Where His death which Soon followed was greatly Lamented by all who Knew Him | He Lived a Virtuous Life So He was removed by a peacefull Death | Leaving a SON & DAUGHTER | To inherit a plentifull Fortune which He was Blesd with | And an exemplary Pattern for Their imitation | at His desire His Remains were here | Interred with His Parents | For whom He Erected this | MONUMENT." | [1]

Isaac Royall the Second kept up his father's place in Medford and his daughters married respectively George Erving and Sir William Pepperell of Portsmouth. (Oliver.) He founded the

[1] Oliver in publishing this epitaph makes several errors in the transcription and says that the second portion, or epitaph to Isaac, is on a separate tomb, but this is a mistake, the whole, as quoted, being on a single slab.

Royall Professorship of Law at Harvard, the first law professorship of that university. In the library of the Harvard Law School is a portrait of Isaac Royall, Second — his wife, sister Penelope, wife's sister and child, painted in 1740, by Robert Feke, a Quaker of Newport. (Brown.) Isaac Royall being driven out by the Revolution, his house became headquarters for Generals Stark and Lee, and in 1810 passed into the possession of Jacob Tidd. (Drake.)

Such an intimate association of old houses is remarkable, all interesting as choice examples of colonial architecture, the homes of prominent families in colonial times, and later full of historic interest as homes for longer or shorter periods of many of America's most illustrious men.

To state the relation of families and houses in brief: Thomas Oliver's father built the Everett house; his grandmother Royall and her husband lived in the Royall house in Medford, Thomas Oliver doubtless built the Lowell house, and his brother-in-law, John Vassall, built the Longfellow house. In addition Thomas Oliver's near of kin occupied most of the famous old houses in Cambridge known as "Tory Row." His aunt Penelope,[1] wife of Henry Vassall, lived in the Governor Belcher house; his wife's aunt Mary,[2] wife of Richard Lechmere, lived in the Riedesel house[3]; his wife's aunt Rebecca,[2] wife of Judge Joseph Lee, lived in the house which bears his name; his wife's aunt Susanna,[4] wife of Captain George Ruggles, lived in the house now known as the Fayerweather house; and his wife's aunt Anna,[4] wife of John Borland, lived in the Plympton house.

This delightful association of old time Tory aristocrats is thus described by Baroness Riedesel in her letters. "Never had I chanced upon such an agreeable situation. Seven families,

[1] Penelope, daughter of Isaac Royall, Senior, of Medford, and half sister of Mrs. Robert Oliver of Dorchester. (Paige, p. 675.)

[2] Mary and Rebecca, daughters of Lieut.-Gov. Spencer Phips, therefore sisters of Mrs. John Vassall, Senior. (Paige, p. 627.)

[3] In front of the original site of this house stand some superb European lindens, perhaps the oldest and finest specimens of their species in the country.

[4] Susanna and Anna, daughters of Major Leonard Vassall and therefore sisters of Colonel John Vassall, Senior. (Harris, p. 119.)

who were connected with each other, partly by the ties of relationship and partly by affection, had here farms, gardens, and magnificent houses, and not far off plantations of fruit. The owners of these were in the habit of daily meeting each other in the afternoons, now at the house of one, and now another, and making themselves merry with music and the dance — living in prosperity, united and happy, until, alas! this ruinous war severed them, and left all their houses desolate, except two, the proprietors of which were also soon obliged to flee." (Paige, p. 168–9.)

Fuller details in regard to these old houses and their interesting occupants are given in the authorities quoted and other local histories. Especially interesting and complete are the splendid work on the history of Antigua by Oliver, the papers by Harris and Stark, and the very careful, painstaking History of Cambridge by Paige. Mr. J. W. Freese gives a brief account of these and other historic houses in near by towns, fully illustrated by excellent photographic reproductions.

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## DESCRIPTION OF PLATES.

Plate 1. Portrait of Mr. John Richardson, from a daguerreotype taken in Dorchester, 25 September 1851, in the fifty-fourth year of his age. The signature from a manuscript written in 1887. Opposite page 150.

Plate 2. The Richardson house, built by Robert Oliver in 1745, later the residence of the Everetts, usually known as the Everett house, southwest view, from Boston Street. Taken in 1887. Pages 168, 188.

Plate 3. The Richardson (Everett) house, barn and fruit-house, southwest view, including the corner of Pond and Boston Streets. Taken in the autumn of 1887. Page 170.

PLATE 4. The Richardson (Everett) house, in summer, the fence has been moved back and some trees cut down as compared with plate 3. A sign board indicates an entrance to Columbia Road, part of the Boston Park System. Taken about 1898. Page 169.

PLATE 5. The Richardson (Everett) house from the northeast, including in the foreground part of the garden. Taken in 1887. Page 170.

PLATE 6. Mr. Richardson's sitting room, the southeast room, the east windows of which (one of these being seen on the right) overlooked the garden. Taken September 1887. Page 170.

PLATE 7. Mr. Richardson's parlor, the southwest room (the windows shown are on the south). The pictures in this room and the sitting room, were painted by Mr. George Richardson. Taken September 1887. Page 170.

PLATE 8. Mr. Richardson's house and garden, from the east. The lower windows belong to the sitting room (Pl. 6), the upper windows to the room where Edward Everett was born. The dining room window, open door to rear hall, and arbor are on the right. Compare with cut, Fig. 10, p. 169. Dahlias are trained against the fence, Ismenes, Iris Sibirica and a peony are on the right of the path. Taken September 1887. Pages 169, 170, 171.

PLATE 9. Richardson seedling peony, *Henry Woodward.* From Country Life in America, September 1904. Page 181.

PLATE 10. Richardson seedling peony, *Milton Hill.* Taken June 1904. Page 182.

PLATE 11. Richardson seedling peony, *Norfolk.* Reproduced from a photograph kindly furnished by Mr. J. Woodward Manning. Page 182.

PLATE 12. Richardson seedling peony, *Samuel Henshaw.* One of the flowers in the lot that received a Silver Medal, June 1904, unfortunately the foliage and stem which are striking features are not shown. Taken June 1904. Page 184.

PLATE 13. Thomas Oliver's house in Cambridge, later the residence of Elbridge Gerry and James Russell Lowell. Taken about 1890. Page 195.

PLATE 14. John Vassall the Second's house in Cambridge, later occupied by Washington, and the long time residence of the poet Longfellow. John Vassall, Second married Elizabeth, daughter of Robert Oliver, who built the Richardson house. Taken in recent years. Page 191.

The lower figure on same plate, is the house of Isaac Royall, Senior in Medford, whose wife was the mother of Mrs. Robert Oliver of Dorchester and grandmother of Thomas Oliver. Taken in recent years. Page 196.

# TRANSACTIONS

OF THE

# Massachusetts Horticultural Society

## FOR THE YEAR 1904

## PART II

BOSTON
PUBLISHED BY THE SOCIETY
NINETEEN HUNDRED AND FIVE

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# ANNUAL REPORTS FOR THE YEAR 1904.

# TRANSACTIONS

OF THE

# Massachusetts Horticultural Society.

1904. PART II.

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## REPORT OF THE BOARD OF TRUSTEES FOR THE YEAR 1904.

In compliance with the requirement of the By-laws and in order that the members of the Society may be informed of the business transacted by the Board of Trustees during the year, this report is presented.

There have been eleven meetings of the Board during the year with an average attendance of eleven members.

January 1. The Board of Trustees of the Massachusetts Horticultural Society was duly organized with the President, Henry P. Walcott, as Chairman.

William P. Rich was appointed Secretary of the Board and Librarian of the Society, and Charles E. Richardson was appointed Superintendent of the Building.

The following committees were appointed:

Finance: —Walter Hunnewell, Chairman, Arthur F. Estabrook, Henry P. Walcott.

Prizes and Exhibitions: — J. K. M. L. Farquhar, Chairman, William N. Craig, Arthur H. Fewkes, Warren W. Rawson, William H. Spooner, Arthur F. Estabrook.

Plants and Flowers: — Arthur H. Fewkes, Chairman, William N. Craig, T. D. Hatfield, Robert Cameron, James Wheeler, William Nicholson, John A. Pettigrew.

Fruits :—E. W. Wood, Chairman, Charles F. Curtis, Warren Fenno, J. Willard Hill, John Ash.

Vegetables :—Michael Sullivan, Chairman, Warren H. Heustis, Aaron Low, Joshua C. Stone, Walter Russell.

Gardens :—Charles W. Parker, Chairman, David F. Roy, John A. Pettigrew, Warren W. Rawson, Arthur H. Fewkes, Oakes Ames, Patrick Norton, Henry P. Walcott.

Library :—Charles S. Sargent, Chairman, Samuel Henshaw, George E. Davenport, Charles W. Jenks, T. Otis Fuller.

Lectures and Publication :—Aaron Low, Chairman, James H. Bowditch, E. W. Wood, Robert T. Jackson, Edward B. Wilder.

School Gardens and Native Plants :—Henry L. Clapp, Chairman, Katharine W. Huston, William E. C. Rich, William P. Rich, Charles W. Jenks, Mary Rodman, Henry S. Adams.

Mr. Farquhar, Chairman of the Committee on Prizes and Exhibitions, called attention to the main points of the new Schedule of Prizes which had been arranged very much as in the previous year. The principal changes were the consolidation of the January and February, and the September and October exhibitions. Many smaller prizes had been cut out for things unimportant or obsolete. He recommended the restoration of the Lowell Medal, to be awarded only by the Fruit and Vegetable Committees, and the Appleton Medal, to be awarded only by the Plant and Flower Committee. It was voted to adopt the report of the Committee on Prizes and Exhibitions and also the recommendations concerning the Lowell and Appleton Medals.

Mr. Farquhar suggested the advisability of the appointment of some competent person to take charge of the arrangement of the various exhibitions of the Society and asked for authority to employ such extra assistance. On motion of Mr. Spooner it was voted that a sum not exceeding $250.00 be placed at the disposal of the Committee on Prizes and Exhibitions for the purpose stated by Mr. Farquhar.

On motion of Mr. Spooner it was voted that $400.00 be appropriated for the library for the present year, in addition to the income of the French and Farlow Funds, and that $150.00 be appropriated for the Committee on School Gardens and Native Plants.

On motion of Mr. Estabrook it was voted to authorize the Chairman of the Finance Committee to give a written order to the Treasurer for the payment of prizes and gratuities and other bills of the Society, in accordance with the provisions of clause (c), Section VI, of the By-laws.

It was voted also, on motion of Mr. Estabrook, that authority be given the Treasurer to draw checks on the funds of the Society on deposit, in accordance with the provisions of clause (k), Section VI.

On motion of Mr. Estabrook it was voted that the salary of the Treasurer be $1,500.00 for the current year and that he furnish bonds satisfactory to the Finance Committee for the amount of $25,000.00, the expense of the same to be paid by the Society.

At this meeting the subjects of the need of electric lamps at the entrance to the building, the improvement of the acoustic properties of the halls, and the present condition and needs of the library were severally considered and referred to committees for future report.

January 2. The committee appointed to consider the matter of salaries of committees and refreshments reported through its Chairman, Mr. Rawson, as follows:

The committee recommends that the Chairman of the Plant and Flower Committee be paid $150.00 annually for his services and that the Chairman of the Fruit Committee and the Chairman of the Vegetable Committee be paid each $100.00 annually, and that they be instructed to make a complete report of their several departments.

Every member of the above-mentioned committees, excepting the chairman, to be allowed two dollars each at the four large exhibitions and one dollar each at all other exhibitions, and no dinner tickets are to be given any committee.

No member of a committee to receive this fee unless present at the meeting of the judges.

Any member of a committee coming from a distance will be entitled, on application to the chairman and on his approval, to receive the amount of his car fare.

The Committee on Gardens will receive the amount of its car fares and necessary expenses.

The committee recommends also that the sum of $100.00 be appropriated to be used for refreshments under the direction of the Chairman of the Committee on Prizes and Exhibitions.

It was voted to adopt the recommendations of the committee.

On motion of Mr. Farquhar it was voted to extend an invitation to the Chrysanthemum Society of America to hold its annual exhibition in the halls of the Massachusetts Horticultural Society in connection with the Chrysanthemum Show of November 3-6.

February 13. Arthur D. Hill was elected a member of the Board to fill the vacancy existing by reason of Mr. Hill's ineligibility at the annual election by the Society.

The following-named candidates, having become eligible in accordance with the provisions of Section XVI of the By-laws, were elected to membership in the Society:

S. King Bayley of Belmont, proposed by Warren H. Heustis,
Joseph Thorpe of Taunton, proposed by Warren H. Heustis,
James Nicol of Quincy, proposed by Joseph H. Woodford,
Philip Dexter of Beverly, proposed by Walter Hunnewell,
Rev. Charles Lewis Hutchins of Concord, proposed by Francis H. Appleton,
Dr. Joseph S. Goodale of Boston, proposed by Robert T. Jackson,
Arthur Clark of East Weymouth, proposed by Charles E. Richardson.

It was voted to extend invitations to the Rose and Carnation Societies of America to hold their annual exhibitions for 1905 in the halls of this Society.

March 12. The following-named candidates were elected to membership in the Society:

Samuel S. Symmes of Winchester, proposed by Charles E. Richardson,
Arthur F. Barney of Dorchester, proposed by Frederick S. Davis,
Henry M. Howard of West Newton, proposed by E. W. Wood.

April 2. Mr. Farquhar, Chairman of the Committee on Exhibitions, reported that the receipts from the recent Spring Show were $596.50 and the payments $255.62, leaving the net proceeds $340.88; a much larger amount than that for the previous year.

May 7. A communication from Henry Lincoln Clapp was read containing his resignation as a member of the Committee on School

Gardens and Native Plants. It was voted to accept the resignation of Mr. Clapp and to express to him the appreciation of the Society for his valuable services on that committee during the past fourteen years.

Appropriations were voted of $200.00 for special prizes at the Annual Exhibition of the Chrysanthemum Society of America in November, and an amount not exceeding $700.00 for additional exhibition glassware.

It was voted to authorize the Committee on Prizes and Exhibitions to issue a Preliminary Schedule of Prizes for the Spring Exhibition of 1905, it being understood that said schedule is to be recommended by the Board of Trustees for adoption by the Society at the Annual Meeting in November, 1904.

This action was necessary in order that certain portions of the schedule might be known beforehand to intending exhibitors.

On motion of Mr. Fewkes it was voted to extend an invitation to the American Peony Society to hold its next annual meeting in the building of the Massachusetts Horticultural Society, in connection with the Peony Exhibition of June 11, 1904.

The following-named candidates were elected to membership in the Society:

Philip W. Moen of Worcester, proposed by William P. Rich,
R. William E. Vining of Hingham, proposed by Aaron Low.

June 25. Mr. Estabrook, on behalf of the Finance Committee, reported a plan for placing four electric lamps at the main entrance to the building with an estimate of the cost of the same, and the committee was authorized to provide the lamps in accordance with the plan presented at an expense not exceeding $810.00.

Mr. Farquhar called attention to the fact that at the recent Rhododendron Exhibition of this Society we were largely indebted for its success to the very liberal contributions of flowers from the estate of Mr. Walter Hunnewell of Wellesley, and he therefore moved and it was heartily voted that the thanks of the Society be presented to Mr. Hunnewell for his generous contribution of rhododendrons on that occasion.

The following-named candidates were elected to membership in the Society:

A. Leuthy of Roslindale, proposed by David Lumsden,
Edward MacMulkin of Boston, proposed by Arthur H. Fewkes,
Allan V. Garratt of Brookline, proposed by William P. Rich.

July 23. On motion of Professor Sargent appropriations for the library were voted as follows:

For alterations in the shelving, in accordance with a plan presented by the architects, Wheelwright & Haven, $450.00.

For an additional card-catalogue case, $74.00. For binding pamphlets, $100.00.

Mr. Spooner spoke of the damage that is being done by the San José scale, gypsy and brown-tail moths, and moved that this Society hold a public demonstration for the purpose of exhibiting in some convenient place approved methods for the destruction of these pests. It was voted that the matter be referred to the Committee on Gardens with full power to hold such a field meeting for the purpose stated.

The following-named candidates were elected to membership in the Society:

Gordon Dexter of Boston, proposed by Charles S. Sargent,
Alfred D. Chandler of Brookline, proposed by Charles W. Parker,
Louis Preston Hollander of Boston, proposed by Charles W. Parker,
Mrs. J. Bertram Williams of Cambridge, proposed by Robert T. Jackson,
George Barker of Swampscott, proposed by C. E. Richardson,
N. Allen Lindsey of Marblehead, proposed by Charles W. Parker,
Samuel C. Lawrence of Medford, proposed by A. F. Estabrook,
Joseph Balch of Dedham, proposed by A. F. Estabrook,
Leander M. Haskins of Rockport, proposed by Charles W. Parker.

October 1. An additional appropriation of $122.00 was voted on account of the alterations in the library shelving and an appropriation of $200.00 was voted for the entertainment of the Chrysanthemum Society of America at its approaching annual meeting in Boston.

Mr. Estabrook, for the committee on improvement of the acoustics of the lecture hall, reported a recommendation that the windows be provided with metallic weather strips and that double windows be put on. He moved and it was voted that $440.00, including the architects' commission, be appropriated for this purpose.

Mr. Spooner suggested the desirability of a change in the Charter of the Society in regard to the method of election of a Treasurer and a Secretary and recommended that a petition be presented to the Legislature for such amendment as may be necessary to place the election of these two officers in the hands of the Board of Trustees. It was voted to refer the matter to the next meeting of the Society.

Mr. Parker reported that arrangements were being made by the Committee on Gardens to hold a public meeting in November to demonstrate methods and apparatus for the destruction of insect pests in accordance with the vote of the Board passed July 23, 1904.

The following-named candidates were elected to membership in the Society:

Theodore Frank Borst of Brookline, proposed by James H. Bowditch,

John Hays Gardiner of Brookline, proposed by Robert T. Jackson,

Edmund Q. Sylvester of Hanover, proposed by J. K. M. L. Farquhar.

November 5. The report of the special committee appointed to consider the appropriations for prizes and gratuities for the year 1905 was acted upon at this meeting and it was voted to recommend to the Society for its approval at the Annual Meeting the following amounts:

| | |
|---|---|
| For Plants and Flowers | $3,731.00 |
| " Fruits | 1,275.00 |
| " Vegetables | 900.00 |
| " Gardens and Greenhouses | 375.00 |
| " School Gardens and Native Plants | 225.00 |
| A total of | $6,506.00 |

The present Committee on Prizes and Exhibitions was authorized to proceed with the preparation of the Schedule for 1905, and the present Committee on Lectures was authorized to proceed with the preparation of a course of lectures for the ensuing year and an appropriation of $200.00 was voted for that purpose. It was voted to grant the use of Horticultural Hall to the Gardeners' and Florists' Club for its meetings during the year 1905; the said Club to pay the cost of janitor's service and of lighting. It was voted also to invite the Boston Coöperative Flower Market Association to hold its February exhibition in the halls of this Society and to extend an invitation to the Carnation Society of America to hold its annual meeting for 1906 at Horticultural Hall, Boston.

The following-named candidates were elected to membership in the Society:

Oliver Hazard Perry of Lowell, proposed by William P. Rich,

Duncan Finlayson of Jamaica Plain, proposed by William N. Craig,

John F. Sharkey of North Cambridge, proposed by C. E. Richardson.

December 10. Mr. Hill, to whom was referred the matter of a change in the Charter of the Society concerning the election of the Treasurer and Secretary, reported a petition and a draft of an amendment to be presented to the Legislature, providing for the appointment of these officers by the Board of Trustees. The report of Mr. Hill was accepted and it was voted to present the petition and bill to the Legislature.

The following committees were appointed for the ensuing year:

Finance:—Walter Hunnewell, Chairman, Arthur F. Estabrook, George F. Fabyan.

Library:—Charles S. Sargent, Chairman, Samuel Henshaw, Charles W. Jenks, Henry P. Walcott, T. Otis Fuller.

Lectures and Publication:—J. Woodward Manning, Chairman, James H. Bowditch, Robert T. Jackson, E. W. Wood, Edward B. Wilder.

Prizes and Exhibitions:—J. K. M. L. Farquhar, Chairman, Wm. N. Craig, Arthur H. Fewkes, Warren W. Rawson, Wm. H. Spooner, John A. Pettigrew.

Plants and Flowers:—Arthur H. Fewkes, Chairman, Wm. N. Craig, Robert Cameron, Wm. Nicholson, James Wheeler.

Fruits:—Warren Fenno, Chairman, Charles F. Curtis, J. Willard Hill.

Vegetables:—Warren W. Rawson, Chairman, Warren H. Heustis, Joshua C. Stone.

Gardens:—Oakes Ames, Chairman, George Barker, Wm. N. Craig, Arthur H. Fewkes, Charles W. Parker, John A. Pettigrew, Wm. P. Rich, Henry P. Walcott.

School Gardens and Native Plants:—Henry S. Adams, Chairman, Charles W. Jenks, Wm. E. C. Rich, Wm. P. Rich, Miss Mary Rodman.

The following-named candidates were elected to membership in the Society:

Mrs. Emma Mayer Keyes of Boston, proposed by Harold J. Coolidge,

John Woodbury of Lynn, proposed by Charles S. Sargent,

Elbridge Torrey of Dorchester, proposed by Edward B. Wilder,

Archie Howard Kirkland of Reading, proposed by Charles W. Parker,

Miss Lucy Lowell of Boston, proposed by Miss Mary Rodman.

William P. Rich, *Secretary.*

# REPORT OF THE COMMITTEE ON PRIZES AND EXHIBITIONS FOR THE YEAR 1904.

BY JOHN K. M. L. FARQUHAR, CHAIRMAN.

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During the year 1904 the usual exhibitions of the Society have been held. The aim of the committee has been to improve the quality of the exhibitions by creating greater interest in them and giving all possible encouragement to those contributing to their success.

When the committee entered upon its work it found that the supply of glass vases for cut-flower exhibits was insufficient and that on several occasions valuable exhibits were lost to the Society because intending exhibitors had been unable to find vases in which to stage the material they had brought to the hall, causing them keen disappointment. A recurrence of this annoyance will not be probable for several years at least as a large number of vases have been purchased, and at better prices than the Society had previously paid for the same quality of glassware.

A decided improvement has been made in the purchase of a supply of paper for covering the exhibition tables. Formerly a white paper had been used which became soiled very quickly and had to be renewed once or twice during an exhibition. The new paper, which in color is a medium shade of natural green, lasts through the exhibition without becoming unsightly and forms a much more pleasing ground for plants and flowers than the white paper formerly used.

At the larger shows there is great difficulty in properly arranging groups of flowering plants in the two exhibition halls because of the red color of the walls. For the Chrysanthemum Exhibition a background of evergreen boughs was arranged against the walls with pleasing effect.

At the beginning of the year a system of exhibitor's entry cards was adopted and entries are now generally received several days before the opening of each show, which is most helpful in arranging the halls.

A card catalogue of exhibitors has been established which will enable the committee to communicate with those competing in any particular class or at any exhibition. Correspondence, soliciting or encouraging exhibits will undoubtedly be a means of increasing their number.

Financially the exhibitions of 1904 show a satisfactory gain over those of the previous year, as may be seen from the Treasurer's report; nevertheless, there is good reason to believe that greater public interest may be aroused in our exhibitions and that the receipts from visitors may be largely increased. To accomplish this the exhibitions must be of highest excellence. Boston has so many floricultural advantages that abundance of material is readily obtainable, provided an attractive list of prizes is offered.

The exhibitions of the Society constitute its most important work for the advancement of horticulture not only in the vicinity of Boston but throughout the country. That they have already done more to this end than those of any other American society is evidenced by the advanced condition of horticulture in this locality and by the high estimation in which the Society's awards are everywhere held; many exhibitors now coming from New York, Philadelphia, Chicago and other distant places to obtain them.

JOHN K. M. L. FARQUHAR,
WILLIAM N. CRAIG,
ARTHUR F. ESTABROOK,
ARTHUR H. FEWKES,
WARREN W. RAWSON,
WILLIAM H. SPOONER.

*Committee on Prizes and Exhibitions.*

# REPORT OF THE COMMITTEE ON PLANTS AND FLOWERS FOR THE YEAR 1904.

BY ARTHUR H. FEWKES, CHAIRMAN.

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The present year marks the return to earlier methods of caring for the exhibits of Plants and Flowers. Up to the year 1891 they were judged by one and the same committee but for several years previous the annual increase in exhibits had been so large that it was finally decided, as a means of facilitating the work, to try the experiment of making two distinct committees, one for the Plants and one for the Flowers.

Undoubtedly the judging was more quickly done by dividing the work of one committee between two, but beyond this there was little gain and the method proved a disadvantage by causing a lack of uniformity in making awards; each committee worked independently and made special awards without reference to what had been done by the other, thereby causing confusion in the awarding of medals and certificates.

It is important that the work should be done with system, and this is possible only where the awards are made by one committee, the members of which are thoroughly conversant with the work that has already been done as well as with that to be done.

A year's trial seems to prove the wisdom of the change although the work has been materially increased, causing considerable delay in the giving out of the prize cards, particularly at the larger shows. This matter is under consideration and will be rectified as soon as some practicable method can be decided upon.

As a whole the exhibitions of the year have been a success, particularly the four large ones. The weekly shows have not been so large or so well attended as in some former years but the quality of the exhibits has seldom, if ever, been better. Whatever the cause may be it seems unfortunate that the interest in the weekly shows should decrease, for they are in direct line with some of the most important work of the Society.

It is true the large exhibitions tend to create a general interest in horticulture, produced by the grand displays of carefully grown

plants and flowers arranged for spectacular effect; but by the very magnificence of these a deterring influence is often exerted rather than an encouraging one; for these shows are preëminently displays of the productions of professionals and past-masters in the art of horticulture; and it is in this light they must be considered.

The weekly shows have a distinct value inasmuch as they furnish opportunities for the small grower, the amateur, and the specialist to make displays of such flowers as they grow and at such times as are most favorable to them. Many beautiful and interesting flowers would never appear on the exhibition tables if it were not for these shows.

The first prize show of the year was held on January 30 and proved a very successful one. Cut orchids from the F. L. Ames Estate, J. E. Rothwell, and Mrs. John L. Gardner made a very important feature, the three collections filling over five hundred bottles. Begonia Gloire de Lorraine was remarkably well shown by R. and J. Farquhar & Co. and Mrs. J. Montgomery Sears.

There were fine displays of *Primula Sinensis* from E. J. Mitton, E. W. Breed, and Mrs. John L. Gardner; the latter also showing fine plants of *Primula stellata* and *Primula obconica*. The Harvard Botanic Garden contributed some very finely grown specimens of *Chorizema ilicifolium* and a beautiful new acacia, *Acacia Baileyana*.

With the exception of orchids the cut flowers were not numerous and there was no competition in the classes for carnations.

A seedling orchid, *Lœliocattleya Maxcina*, from E. O. Orpet was shown for record only. It was the result of a cross between *Cattleya maxima* and *Lœlia cinnabarina*.

The Spring Show, March 24, 25, 26, and 27, was a remarkably fine display of plants and flowers skilfully arranged. The main exhibition hall was filled principally with the plant exhibits; the cyclamens filling the foreground backed by the displays of palms and rambler roses, and flanked by miscellaneous groups of bulbous plants, *Primula obconica*, and foliage plants. The display of hybrid Hippeastrums from Walter Hunnewell was a most attractive one, filling a large table at the right of the loggia steps. They were principally seedlings but many of them were magnificent flowers of mammoth size and fine colors. As these plants are

naturally without foliage when in bloom, plants of *Cyrtomium falcatum* were interspersed among them giving a fine effect.

An unusual feature and one well worth encouraging was the display of Easter Plants from Louis Dupuy, Whitestone, L. I., his Ericas being specially noticeable.

The displays of seedling rambler roses from M. H. Walsh have become one of the most important features of our Spring Shows and his exhibit this year excelled all previous efforts. His group included magnificent plants of Sweetheart, Lady Gay, Minnehaha, Hiawatha, La Fiamma, and Wedding Bells. Special mention should be made of the displays of cyclamens, which it is safe to say have never been equaled before in this country.

The lecture hall was devoted mostly to cut flowers and to the displays of forced hardy plants and shrubs from the Bussey Institution.

There were very few entries in the rose classes but the displays of carnations were more numerous than usual. Cut orchids were shown by W. P. Winsor and Col. Charles Pfaff, their displays including many rare species and varieties.

The May Exhibition, May 7, was not extensive but the plants entered in the class for calceolarias were finely grown specimens. There was also a very comprehensive diplay of spring garden flowers from the Harvard Botanic Garden.

An unusual exhibit was made by Walter Hunnewell, who showed some very fine plants of *Acuba Japonica famina*, well ladened with scarlet fruit.

There were but few Pelargoniums shown but these were well grown plants.

The Rhododendron Exhibition, June 4–5, was more than ordinarily good, filling the lecture hall and loggia.

The principal displays of rhododendrons were from Walter Hunnewell and Mrs. John L. Gardner. Considering the severe winter preceding it was somewhat surprising to see so fine displays of these flowers. German irises were shown in large numbers and in fine condition. The displays of cut, hardy, ornamental trees and shrubs were likewise numerous and made an interesting part of the exhibition.

Mr. Cameron from the Harvard Botanic Garden brought in a remarkably fine display of hardy, herbaceous flowers, labeled with

the care and accuracy for which his displays are noted. The smaller displays were quite numerous and all of good quality, helping much to make this show a most successful one.

The Peony Show, June 11, was not altogether successful owing to the backwardness of the season. The principal class calling for thirty or more varieties of herbaceous peonies was not competed for and was consequently carried over to the Rose Show, June 21–22. There were several small displays not in competition including a number of new varieties never before shown here, some of them native seedlings.

As an exhibition the Rose and Strawberry Show must be considered one of the most successful of the year. Although roses were largely shown the quality was not as good as we have seen in former years. The competition was more spirited than it has been for several years and gave promise of a revival of interest in this old-time favorite.

The peony prizes held over from the Peony Show were competed for with much enthusiasm and made with the displays not in competition the finest display of these flowers ever shown in this country. There were many varieties shown which ordinarily are too late for the regular Peony Show and as nearly all of the most magnificent varieties are among the late ones the public was treated to such a display of these flowers as it seldom has the privilege of viewing.

One of the most noteworthy exhibits was made by Dr. R. T. Jackson who placed on exhibition nearly the entire collection of seedlings raised by the late John Richardson. Some of these were on exhibition for the first time and were given special awards. The varieties shown were, Dorchester, Francis B. Hayes, Grandiflora, H. A. Hagen, Henry Woodward, Isaac Lea, John Richardson, Milton Hill, Norfolk, Paul Fischer, Richardson's Perfection, R. P. Whitfield, Rubra Superba, Samuel Henshaw, and Walter Faxon. These with the varieties George B. Sowerby, Charles Sedgwick Minot, and Ferdinand Stoliczka shown June 11 comprise the entire collection. As most of the varieties of peonies are of European origin it is interesting to know that out of the eighteen varieties raised by Mr. Richardson, ten have received either medals or certificates.

The prizes offered at the weekly shows between the Rose Show and the Annual Exhibition were nearly all competed for and the quality of the exhibits was remarkably good. There were many exhibits entered which were not in competition, among them being several of great value and interest. As most of them received special awards they will be passed over here and given special attention further on.

The Annual Exhibition, Sept. 22–23–24–25, was one of the best on record, the main hall being filled with displays of well-grown plants effectively arranged. Particularly fine were the plants from the Harvard Botanic Garden, several of which were so well grown that special honors were awarded them.

In many of the classes the competition was very good. The Hunnewell prize for hardy, coniferous trees was among those not competed for which was a distinct loss to the exhibition. It is several years since there have been entries in this valuable class, which is to be regretted as the displays are always interesting and instructive. A revival of interest in these prizes is much to be desired.

In the cut flower classes competition was quite spirited, particularly in dahlias. The quality was not up to the standard but this was principally due to the late date of the exhibition and the occurrence of frost the night before the opening day. There seems to be a great revival of interest in these beautiful flowers, occasioned no doubt by the introduction of the Cactus varieties, which were largely shown and received as usual the most attention from visitors.

The displays of gladioli were very meager owing probably to to the late date of the exhibition and the same can be said of China asters.

Although this show was considerably later than usual there was a fine display of aquatic plants and flowers: Bayard Thayer and H. A. Dreer both contributing large collections.

The Chrysanthemum Show, November 3–4–5–6, although a decided success and in many ways superior to all our former exhibitions of this flower, was in some respects a disappointment. It was held in conjunction with the exhibition of the Chrysanthemum Society of America and great effort was made to make this

the best exhibition of its kind on record. In this the management succeeded remarkably well, but with few exceptions the Chrysanthemum Society failed to materialize and their absence, while not detracting materially from the general effect, was nevertheless keenly felt.

Though small in number the exhibits in competition for the prizes offered by the Chrysanthemum Society of America were remarkably fine, particularly those shown by William Duckham, gardener to Dr. Willis James. These were considered to be by far the largest and most perfect specimens ever shown in Boston.

A very remarkable display was made by Charles Totty of Madison, N. J., who placed on exhibition a collection of undisseminated varieties from W. Wells & Co., Earlswood, Surrey, England. The entire collection had previously been shown at the Royal Horticultural Society's exhibition in London, October 19. After being shown there they were packed and shipped across the Atlantic to Boston. They were in fine condition, nearly as good as those from local growers.

These varieties were mostly of Australian origin and included many distinct varieties which, undoubtedly, will be largely grown when disseminated.

It is worthy of note that the largest number of really good new varieties are now coming from Australia through the abovementioned firm.

The competition for the prizes offered by the Massachusetts Horticultural Society was mostly confined to the larger classes for blooms on long stems.

Although interesting and adding much to the attractiveness of the show it seems very difficult to bring out collections of flowers which represent the many existing classes and it is to be regretted that about all of the interest among growers seems to be centered in the large varieties of practically one class.

The special prizes offered for carnations brought out a fine display and this feature should receive more attention at future chrysanthemum shows as it gives more variety to the exhibition.

The plants exhibited were of the usual high standard and the several collections were so nearly equal in quality that judging them proved to be quite difficult.

Although the entries in the class for groups arranged for artistic decorative effects were better than usual the real artistic idea seems not to be understood and leaves much to be desired.

The general arrangement of the main hall was good, the use of evergreen boughs and autumn foliage making a splendid background for the displays and relieving the monotony of the red brick walls.

One of this committee's most important duties, or perhaps the most in its far-reaching influence, is the giving of special awards. Under this head are included Medals, Certificates of Merit, and Honorable Mention. We have found it advisable to make many of these awards during the year, a description of which follows in consecutive order.

The first award of this nature was a First Class Certificate of Merit given to Robert Cameron, gardener of the Harvard Botanic Garden, on January 30, for *Acacia Baileyana*, a new species of a beautiful deep yellow color, in the way of *A. cultriformis*.

On this same date W. B. Arnold of Rockland was awarded a First Class Certificate of Merit for his variegated sport from carnation Mrs. T. W. Lawson. This is a very pleasing flower with pure white ground, striped with the pink color of its parent, and retains all the good qualities which have made that variety famous.

At the Spring Show, March 24–27, M. H. Walsh was awarded First Class Certificates of Merit for new seedling rambler roses, Wedding Bells and Babette; the former a very free flowering, double, light pink variety and the latter a much deeper shade, smaller, and with more rounded petals.

Julius Roehrs was awarded Honorable Mention for a new fan palm, *Livistona Woodwardii*, and Louis Dupuy, a First Class Certificate of Merit for *Hydrangea hortensis rosea* with very deep rose-pink flowers, the foliage and habit much like the old variety Thomas Hogg.

E. O. Orpet was awarded a First Class Certificate of Merit for a handsome new hybrid orchid, *Cattleya* × *Katherine*, (*C. Warneri* × *Schroderæ alba*), and F. R. Pierson Co., a First Class Certificate of Merit for their new fern, a sport from *Nephrolepis Piersoni*, with shorter and more finely divided fronds and more compact habit.

First Class Certificates of Merit were awarded also to F. R. Pierson Co., for White Lawson, another sport from the carnation Mrs. T. W. Lawson, and to A. Roper for seedling Carnation Chester Roper.

Honorable Mentions were awarded L. E. Small for seedling carnation Number 3, S. J. Goddard for seedling carnation Helen Goddard, a beautiful cerise-pink, and John N. May for new, red forcing Rose Gen. McArthur.

At the May Show, May 7, George F. Fabyan was awarded Honorable Mention for a seedling, Fancy Pelargonium, Miss Henderson, with handsome, lavender colored flowers, blotched with deep crimson.

J. E. Rothwell was awarded a First Class Certificate of Merit for an interesting seedling orchid, *Lælia* × *Latona*, (*L. cinnabarina* × *L. purpurata*).

L. E. Small again showed his seedling, white carnation, Number 3, previously shown at the Spring Show and then awarded Honorable Mention. The variety was shown this day in such fine form that a further award was made it of a First Class Certificate of Merit.

June 4 Walter Hunnewell made a fine display of rhododendrons for which a Silver Medal was awarded.

Frederic J. Rea was awarded Honorable Mention for new German iris, Her Majesty, and Horatio C. Merriam, the same for new German iris, Madonna alba, both being valuable additions to the German iris.

At the Peony Show, June 11, Prof. R. T. Jackson was awarded First Class Certificates of Merit for the Richardson seedling peonies, Ferdinand Stoliczka and Charles Sedgwick Minot. The former a cream-white flower with broad and rounded guard petals and loose center, the latter a self-colored flower of a beautiful light rose-pink color, with long center petals and projecting guards.

T. D. Hatfield was awarded First Class Certificates of Merit for two seedling peonies, Numbers 1 and 2. The first being a very large, full flower with solid center and broad guard petals of a delicate flesh-color changing to cream-white. The other is similar but less full and marked with carmine in the center.

E. J. Shaylor showed the Kelway peony, Lady Alexandra Duff. It is a very large white flower in the way of Festiva Maxima, but with yellowish center marked with red. The center petals are long and broad, intermixed with fine yellow petaloids which give the yellow tinge to the flower.

George Hollis was awarded Honorable Mention for seedling peony, Number 623, a flower of the Japanese type with broad, rosy-crimson guard petals and center of shamois and pink petaloids.

At the Rose and Strawberry Exhibition, June 21–22, E. J. Shaylor was awarded a First Class Certificate of Merit for Lemoine's new peony, Mme. Emile Lemoine, a very large, full flower with broad petals, intermixed with a few stamens. The color is a delicate, creamy white throughout, slightly tinged with pink. He was also awarded a First Class Certificate of Merit for Crousse's new peony, Marguerite Gerrard, a very large and very full, deep flower, beautiful creamy blush in color and broad petaled.

George Hollis was awarded First Class Certificates of Merit for new seedling peonies, Mary Louise Hollis and Sunrise. The former a very large, full flower with long petals, color clear rose with lighter center. The latter is of the Japanese Anemone type, with clear, rose-pink guard petals and yellow center.

A. H. Fewkes was awarded a First Class Certificate of Merit for Crousse's white peony, Avalanche, a large, full flower with broad, shell-shaped guard petals and long center petals.

Prof. Robert T. Jackson was awarded First Class Certificates of Merit for the Richardson seedling peonies, John Richardson and Walter Faxon, the first a very large and full, somewhat flat flower, with long petals, clear deep rose-pink in color. The latter also large and full, with long petals of a beautiful deep flesh, tinged with salmon, the color being very clear and pure.

He was also awarded a Silver Medal for the variety Samuel Henshaw of the same origin, a plant of remarkably strong and vigorous habit, gigantic flowers with petals of various lengths but full in form. The guard petals are deep rose in color, the center creamy white shaded with rose.

George Hollis was awarded Honorable Mention for six other seedling peonies, as follows: Beauty's Mask, deep rose tinged

white; Number 732, 1904, deep lilac-pink; Number 279, 1902, clear salmon-flesh throughout, very promising; Number 181, 1902, rosy-white; Number 986, 1904, delicate flesh, lighter in center, very promising; Number 491, 1903, Japanese Anemone form, deep crimson-rose guard petals, the center petaloids crimson, tipped yellow.

Besides the special awards made to peonies at this show there were several for other flowers. Mrs. Harriett R. Foote was awarded a Bronze Medal for a fine collection of tea and hybrid-tea roses grown in the open air at Marblehead. The collection comprised forty-five varieties.

Honorable Mention was awarded to Walter Hunnewell for a very distinct, unnamed Campanula from Siberia with large, greenish-white, drooping flowers.

The new seedling rose, Minnie Dawson, from Jackson Dawson, was awarded a First Class Certificate of Merit. It is a double flower of the *multiflora* type and is a cross between *Rosa multiflora* and *Rosa alba*.

Another seedling rose by the same exhibitor, but without name, is a cross between *R. Wichuraiana* and *Triomphe de Luxembourg*. It has a creeping habit, glossy green leaves, and large, deep pink flowers with lighter centers. This is a promising rose and was awarded Honorable Mention.

July 9 J. E. Rothwell exhibited a new seedling Cypripedium, Mrs. J. E. Rothwell, for which he received a First Class Certificate of Merit. It is a cross between *C. almum* and *C. niveum*. The lip is white, shaded deep rose, sepals and petals shaded rose and spotted black. He was also awarded Honorable Mention for *Cypripedium Burbidgeanum*, (*C. Dayanum* × *C. concolor*). In this the lip is greenish-white, shaded rose, sepals and petals shaded and veined the same.

The new sweet pea, Scarlet Gem, was shown by the F. L. Ames Estate. It is a great improvement in reds and was awarded Honorable Mention.

July 16 the double tuberous begonias, Gold of Ophir and *Grandiflora erecta cristata*, were shown by H. H. Rogers and received Honorable Mention.

Honorable Mention was also awarded the F. L. Ames Estate

FARQUHAR'S CHRISTMAS LILY,
LILIUM PHILIPPINENSE, BAKER.

for three new sweet peas; White Wonder, a fine large white; King Edward VII., rich red; and Dorothy Eckford, a large white. On July 23 W. A. Manda showed several plants of *Lælia elegans*, among which the varieties Mrs. George Schlegel and Number 200 were selected as worthy of special mention and were awarded Honorable Mention. The former is a white flower with purple lip, veined darker, and the latter a purple flower, tinged buff with deep purple-crimson lip.

Honorable Mention was also awarded to Edward Kirk of Bar Harbor, Maine, for a seedling hardy carnation. It is very bright scarlet in color and of much promise in its class.

August 6 the Blue Hill Nurseries exhibited two promising herbaceous phloxes for which Honorable Mention was awarded: one red, Number 17, and the other pink, Daybreak.

William N. Craig also showed a fine seedling phlox, Number 3, and was awarded Honorable Mention for it.

The F. L. Ames Estate exhibited specimens of the new hardy herbaceous plant *Rehmannia Angulata*, a handsome, strong-growing plant of much promise, for which a First Class Certificate of Merit was awarded.

The new white, bush Dolichos was exhibited by F. S. Davis and received Honorable Mention.

On this same day probably the most important and valuable new plant of the year, and we will venture to predict for many years to come, was shown by the R. & J. Farquhar Co. who placed on exhibition their Christmas Lily, *Lilium Philippinense*. Although this species was introduced several years ago by the Messrs. Veitch of London, it was in small numbers and practically disappeared. As reintroduced by the Farquhars this lily seems to differ somewhat from the original species as introduced by Veitch. It comes from the district of Benguet in the Philippine Islands and as it grows naturally at a high altitude it may prove hardy. In fact, the first shipment received by them remained in a frozen condition for several months after arrival without the slightest injury. But whether it is hardy or not, unless all signs fail, this lily is destined to revolutionize the Easter lily business. The bulbs as received by the Farquhars were of very small size, not more than half an inch in diameter, and badly dried; yet

these same bulbs in from six to eight weeks' time produced stems averaging two feet in height with from one to three magnificent, gardenia-scented blooms, eight inches to ten inches and, on some of the strongest bulbs, twelve inches in length. They are the purest white in color, of the *longiflorum* type, but much longer in proportion, the tube being very narrow and graceful. The stems are wiry, amply sustaining the large flowers.

The leaves are very narrow and numerous and are, perhaps, its only fault, if fault it can be considered, for they are very graceful and enhance the beauty of the plant except when grown as a single specimen.

The committee considering this worthy of the highest award given by the Society placed upon it the Society's Gold Medal.

On August 13 William Whitman was awarded Honorable Mention for a fine display of new Delphiniums; the Blue Hill Nurseries, a First Class Certificate of Merit for a splendid collection of hardy herbaceous flowers filling one hundred bottles; and the F. L. Ames Estate a Silver Medal for a fine display of orchids.

August 20 Joseph H. White was awarded a First Class Certificate of Merit for the dwarf phlox, *Tapis blanc*. The plant is extremely dwarf in habit, with pure white, finely formed flowers.

Honorable Mention was awarded Lager & Hurrell for a fine display of *Lælia elegans*, and R. & J. Farquhar & Co. the same award for a display of several varieties of *Lilium auratum*.

August 27 Lyman H. Atkins was awarded Honorable Mention for a display of flowers grown in an apartment house back yard. The display was interesting, showing what can be done with common flowers under adverse circumstances.

At the Annual Exhibition, September 22, 23, 24, and 25, the Blue Hill Nurseries was awarded a First Class Certificate of Merit for the beautiful *Kniphofia Pfitzerii*. Although not entirely new this was the first time shown here in fine condition.

The F. R. Pierson Co. again exhibited their new fern which was first shown at the Spring Show and then awarded a First Class Certificate of Merit. It has been named *Nephrolepis exaltata Piersoni compacta*, or the Tarrytown Fern, and was shown in so much better form that a further award was made them of the Society's Silver Medal.

A Silver Medal was also awarded Henry A. Dreer for a fine display of aquatics, unusually good for so late a date. He was also awarded First Class Certificate of Merit for two new varieties of *Nymphœa*, *N. dentata superba* and *N. Zanzibariensis Pennsylvania*. The former is a magnificent pure white flower and the latter an immense bloom of a fine deep lavender-blue color.

Still another sport of *Nephrolepis exaltata* was shown at the Chrysanthemum Show by John Scott, Brooklyn, N.Y., and named by him *Nephrolepis exaltata Scottii*. It is a plant of very compact growth, the fronds being much shorter than the original and much more freely produced. It is graceful in habit and a valuable acquisition. A Silver Medal was awarded him for this.

Honorable Mention was awarded A. M. Davenport for another sport of the Pierson Fern which appeared with him. It is practically the same thing as Pierson's new variety, *compacta*.

The most notable award at this show, a Gold Medal, was given W. Wells & Co., Ltd., Earlswood, Surrey, England, for their display of undisseminated chrysanthemums, a description of which has already been given.

Honorable Mention was awarded S. J. Goddard for his light pink seedling carnation, Number 19; Peter Fisher for a deep crimson seedling, Number 113; J. D. Thompson Carnation Co. for new seedling carnation, Gibson Beauty; M. A. Patten for pink sport from carnation, Mrs. Patten; H. A. Jahn for seedling white carnations, Number 9 and Wild Rose; G. B. Anderson for seedling carnation, Number 10; R. & J. Farquhar & Co. for collection of new imported Japanese chrysanthemums; T. Devoy & Son, Poughkeepsie, N.Y., for new geranium, Telegraph; John Cook, Baltimore, Md., for unnamed seedling white rose; and to Mrs. Philip Dexter, Manchester, Mass., for a white seedling chrysanthemum.

First Class Certificates of Merit were given to Guttman and Weber, New York, for a very beautiful red seedling carnation, Victory; to Waban Rose Conservatories for new seedling rose, The Wellesley, similar to La France in color; Cottage Gardens for seedling carnation, Robert Craig, another beautiful scarlet variety; and to Chicago Carnation Co. for the light pink seedling carnation, Fiancee.

At this same show the Society's Silver Medal was awarded to Sander & Son, St. Albans, England, for their new *Nicotiana Sanderæ*. It is somewhat in the way of *N. affinis*, one of its parents, but is deep pink in color and very floriferous.

November 19 James Garthley was awarded a First Class Certificate of Merit for his seedling anemone-flowered pompon chrysanthemum, Victoria. This is a pretty white flower with yellow center and a decided addition to its class.

During the year a larger number than usual of special awards have been made for superior cultivation of various plants. Careful attention to this matter seems to be producing good results as the general quality of the plants shown improves from year to year. These awards are something more than a mere acknowledgement of a well-grown specimen; they are practically a guarantee of the skill of the grower and consequently of great value to him, for they are never given unless the specimen shows unusual skill in its cultivation. These awards will be found in detail with the general list for the year, which follows.

| | |
|---|---|
| We have awarded during the year in prizes and money gratuities . . . . . | $3,348.00 |
| Two Society's Gold Medals | |
| One Society's Silver Gilt Medal | |
| Three Appleton Silver Gilt Medals | |
| Seven Society's Silver Medals | |
| Four Society's Silver Medals (Cultural) | |
| Three Appleton Silver Medals | |
| One Society's Bronze Medal | |
| Two Appleton Bronze Medals | |
| Actual cost of above including cases and lettering . . . . . | 258.26 |
| | $3,606.26 |

We have also awarded thirty-two First Class Certificates of Merit, thirteen Cultural Certificates, forty-four Honorable Mentions, and sixty-three Votes of Thanks.

The following special prizes have also been awarded:

| | |
|---|---|
| One Kelway Silver Gilt Medal | |
| One Kelway Bronze Medal | |
| Sarah B. Fay prizes . . . . . | $50.00 |
| Gardeners' and Florists' Club prize . . . | 50.00 |
| William Nicholson prize . . . . . | 10.00 |
| Patten & Company prize . . . . . | 10.00 |
| Peter Fisher prize . . . . . | 10.00 |

Five hundred and ninety-two awards of all kinds have been made.

## PRIZES AND GRATUITIES AWARDED FOR PLANTS AND FLOWERS.

### 1904.

#### January 2.

*Gratuities:* —

George F. Fabyan, *Cattleyas* and *Primula obconica*, $8.
Mrs. John L. Gardner, *Primula Sinensis*, $6.

#### January 30.

Primula Sinensis.—Six plants in not less than six-inch pots:
1st, Edward J. Mitton, $6; 2d, E. W. Breed, $3; 3d, Mrs. John L. Gardner, $2.

Primula Stellata.—Six plants in not less than six-inch pots:
1st, Mrs. John L. Gardner, $6.

Primula Obconica Hybrids.—Six plants in not less than six-inch pots:
1st, Mrs. John L. Gardner, $6.

Freesias.—Vase of fifty sprays:
1st, Mrs. E. M. Gill, $6.

Orchids.—Display of not less than twenty named species and varieties, filling not less than twenty bottles:
1st, F. L. Ames Estate, Appleton Silver Gilt Medal; 2d, J. E. Rothwell, Appleton Silver Medal; 3d, Mrs. John L. Gardner, Appleton Bronze Medal.

Violets.—Best collection of varieties, in bunches of fifty blooms each:
1st, Norris F. Comley, $4; 3d, Col. Chas. Pfaff, $2.

*Gratuity:*—

Harvard Botanic Garden, *Chorizema ilicifolium*, $5.

## Spring Exhibition.

March 24, 25, 26, 27.

### Plants.

*Theodore Lyman Fund.*

Indian Azaleas.—Six named varieties:

1st, Edward W. Breed, $20; 2d, Edward MacMulkin, $15; 3d, J. A. Beebe, $10.

*Society's Prizes.*

Ericas.—Six, not less than three species:

1st, Louis Dupuy, $8.

Orchid.—Single plant:

1st, W. P. Winsor, $8; 2d, Col. Chas. Pfaff, $5; 3d, Edward J. Mitton, $3.

Climbing Rose.—Specimen plant in bloom:

1st, M. H Walsh, $10; 2d, M. H. Walsh, $6.

Hardy Primroses and Polyanthuses. — Twelve plants of distinct varieties:

1st, William Whitman, $10; 2d, William Whitman, $6; 3d, A. F. Estabrook, $4.

Cyclamens.—Ten plants:

1st, George F. Fabyan, $20; 2d, J. S. Bailey, $15.

Ten plants, in not over seven-inch pots:

1st, George F. Fabyan, $12; 2d, E. A. Clark, $8; 3d, George F. Fabyan, $6.

Single plant:

1st, George F. Fabyan, $5; 2d, Edward J. Mitton, $4; 3d, George F. Fabyan, $3.

Cinerarias.—Six varieties:

1st, Edward J. Mitton, $15; 2d, George F. Fabyan, $10; 3d, Mrs. John L. Gardner, $6.

Three varieties:

1st, Edward J. Mitton, $8; 2d, Mrs. John L. Gardner, $6; 3d, George F. Fabyan, $4.

Hyacinths.—Twelve named varieties, in pots, one in each pot:

1st, E. A. Clark, $10; 2d, Mrs John L. Gardner, $6; 3d, Bussey Institution, $4.

Six named varieties, in pots, one in each pot:

1st, Mrs. John L. Gardner, $5; 2d, Bussey Institution, $4; 3d, Bussey Institution, $3.

Three pans, not to exceed twelve inches, ten bulbs of one variety in each pan:

1st, E. A. Clark, $10; 2d, Mrs. John L. Gardner, $6; 3d, Bussey Institution, $4

Single pan, not to exceed twelve inches, with ten bulbs of one variety:

1st, Mrs. John L. Gardner, $5; 2d, Bussey Institution, $4; 3d, E. A. Clark, $3; 4th, E. A. Clark, $2.

TULIPS.—Six eight-inch pans, nine bulbs of one variety in each:

1st, E. A. Clark, $8; 2d, Bussey Institution, $6; 3d, Bussey Institution, $4.

Three eight-inch pans, nine bulbs of one variety in each:

1st, E. A. Clark, $4; 2d, Bussey Institution, $3; 3d, Bussey Institution, $2.

Three ten-inch pans, twelve bulbs of one variety in each:

1st, E. A. Clark, $6; 2d, Bussey Institution, $5; 3d, Bussey Institution, $4.

POLYANTHUS NARCISSUS.—Four eight-inch pots, five bulbs in each, distinct varieties:

1st, E. A. Clark, $6; 2d, Bussey Institution, $4; 3d Mrs. John L. Gardner, $3.

JONQUILS.—Six pots or pans, not exceeding eight inches:

1st, William Whitman, $4; 2d, Mrs. John L. Gardner, $3.

NARCISSUSES.—Six eight-inch pots or pans, distinct varieties, single or double:

1st, E. A. Clark, $10; 2d, Mrs. John L. Gardner, $6; 3d, William Whitman, $4.

Three eight-inch pots or pans:

1st, E. A. Clark, $5; 2d, Mrs. John L. Gardner, $3; 3d, A. F. Estabrook, $2.

LILY OF THE VALLEY.—Six pots or pans, not exceeding eight inches:

1st, E. A. Clark, $4; 2d, Bussey Institution, $3; 3d, Bussey Institution, $2.

CROCUSES.—Three ten-inch pans, three distinct varieties:

1st, Bussey Institution, $4; 2d, Bussey Institution, $3.

ROMAN HYACINTHS.—Six eight-inch pans, ten bulbs in a pan:

1st, E. A. Clark, $5; 2d, Bussey Institution, $3.

AMARYLLISES.—Six pots, distinct varieties:

1st, Walter Hunnewell $10.

GENERAL DISPLAY OF SPRING BULBS AND PLANTS.—All classes:

1st, Bussey Institution, $30.

### FLOWERS

HYBRID PERPETUAL ROSES.—Twelve blooms, in not less than four named varieties:

1st, Col. Charles Pfaff, $10; 2d, Col. Charles Pfaff, $6.

Tender Roses in Vases.—Twelve blooms of American Beauty:
1st, Waban Rose Conservatories, $15; 2d, F. R. Pierson Co., $12.
Twenty-five blooms of any other variety:
1st, Waban Rose Conservatories, Golden Gate, $10; 2d, Waban Rose Conservatories, Ivory, $6.

Carnations.—Vase of one hundred cut blooms, with foliage, not less than six varieties:
1st, William Nicholson, $8; 2d, M. A. Patten, $6; 3d, Wilfrid Wheeler, $4.
Twenty-five blooms of any named Crimson variety:
1st, M. A. Patten, Harry Fenn, $4; 2d, S. J. Goddard, Harry Fenn, $3; 3d, Wilfrid Wheeler, Harry Fenn, $2.
Twenty-five blooms of any named Dark Pink variety:
1st, M. A. Patten, Mrs. T. W. Lawson, $4; 2d, L. E. Small, Mrs. T. W. Lawson, $3; 3d, E. A. & W. K. Wood, Mrs. T. W. Lawson, $2.
Twenty-five blooms of any named Light Pink variety:
1st, Wm. Nicholson, Enchantress, $4; 2d, M. A. Patten, Enchantress, $3; 3d, J. W. Foote, Enchantress, $2.
Twenty-five blooms of any named Scarlet variety:
1st, M. A. Patten, Adonis, $4; 2d, M. A. Patten, Manley, $3; 3d, L. E. Small, Manley, $2.
Twenty-five blooms of any named White variety:
1st, William Nicholson, Governor Wolcott, $4; 2d, H. A. Stevens Co., Governor Wolcott, $3; 3d, M. A. Patten, Boston Market, $2.
Twenty-five blooms of any named Yellow Variegated variety:
1st, M. A. Patten, Dorothy Whitney, $4; 2d, Backer & Co., Eldorado, $3.
Twenty-five blooms of any named White Variegated variety:
1st, E. A. & W. K. Wood, Gaiety, $4.

Pansies.—Forty-eight cut blooms, not less than twenty-four varieties:
1st, Mrs. E. M. Gill, $3; 2d, John R. Comley, $2.

Violets.—Bunch of one hundred blooms of Lady Hume Campbell:
1st, Norris F. Comley, $3; 2d, Malcolm Orr, $2; 3d, Col. Chas. Pfaff, $1.
Bunch of one hundred blooms of Marie Louise:
2d, Norris F. Comley, $2; 3d, J. Arthur Beebe, $1.
Bunch of one hundred blooms of any other double variety:
1st, Norris F. Comley, Neapolitan, $3; 2d, Norris F. Comley, Swanley White, $2.
Bunch of one hundred blooms of any single variety:
1st, William Sim, Princess of Wales, $3; 2d, Norris F. Comley, Princess of Wales, $2; 3d, Col. Chas. Pfaff, Princess of Wales, $1.

Orchids.—Display of not less than twenty named species and varieties, filling not less than twenty bottles:
1st, W. P. Winsor, Appleton Silver Gilt Medal; 2d, Col. Chas. Pfaff, Appleton Silver Medal.

*Gratuities:—*

M. H. Walsh, Display of Rambler Roses, $30.
Julius Roehrs, Display of Palms, Foliage Plants, and Orchids, $10.
Louis Dupuy, Display of Hydrangeas, Marguerites, etc., $5.
R. & J. Farquhar & Co., Display of Spring Bulbs and Plants, $20.
Harvard Botanic Garden, Display of *Primula obconica* and Palms, $20.
Edmund W. Converse, Display of Palms, Cyclamen, and *Primula obconica*, $8.
Lager & Hurrell, Display of Orchids, $10.
J. & E. Rothwell, Display of Orchids, $6.
Jason S. Bailey, Dendrobiums, $3.
Bussey Institution, Display of Forced Hardy Shrubs and Herbaceous Plants, $25.
Peter Fisher, Vases of Mrs. Patten and Nelson Fisher Carnations, $5.
M. A. Patten, Vase of Mrs. Patten Carnation, $5.
Mrs. E. M. Gill, Display of Flowers, $3.

MARCH 26.

*Gratuity:—*

William Sim, Vase of Violet, Princess of Wales, $2.

## MAY EXHIBITION.

MAY 7.

PLANTS.

CALCEOLARIAS.—Six varieties in pots:
1st, George F. Fabyan, $15; 2d, E. A. Clark, $10.
PELARGONIUMS.—Six named Show or Fancy varieties in not less than eight-inch pots:
1st, George F. Fabyan, $10.

FLOWERS.

TULIPS.—Forty-eight blooms, not less than twenty-four varieties:
1st, William Whitman, $5.
PANSIES.—Forty-eight blooms, not less than twenty-four varieties:
1st, J. B. Shurtleff, Jr., $3; 2d, Mrs. E. M. Gill, $2.

*Gratuities:—*

Mrs. E. M. Gill, Display of Tulips, etc., $2.
William Whitman, " " " $2.
Harvard Botanic Garden, Display of Herbaceous Plants and Bulbs, $12.

MAY 14.

*Gratuity*

W. B. Roberts, *Amaryllis vittata*, $1.

## Rhododendron Exhibition.

June 4 and 5.

### Flowers.

*H. H. Hunnewell Fund.*

Rhododendrons.—Twelve distinct varieties, of unquestioned hardiness, named:

1st, Mrs. John L. Gardner, $10.

Six distinct varieties of unquestioned hardiness, named:

1st, Mrs. John L. Gardner, $5.

Twelve tender varieties, named:

1st, Walter Hunnewell, $10.

Six tender varieties, named:

1st, Walter Hunnewell, $5.

Hardy Azaleas.—Twelve varieties, one vase of each:

1st, Mrs. John L. Gardner, $6; 2d, T. C. Thurlow, $4.

Six varieties, one vase of each:

1st, E. P. Shaw, $4.

Cluster of trusses, one variety:

1st, Mrs. John L. Gardner, $3; 2d, T. C. Thurlow, $2.

*Society's Prizes.*

German Irises.—Thirty-six vases of three trusses each, of not less than twelve varieties:

1st, T. C. Thurlow, $5; 2d, Horatio C. Meriam, $3; 3d, William Whitman, $2.

Hardy Pyrethrums.—Display of thirty bottles, single and double, six or more varieties:

1st, Mrs. John L. Gardner, $5.

Hardy Ornamental Trees and Shrubs.—Display of not less than thirty species and varieties, named:

1st, Mrs. John L. Gardner, $10; 2d, E. A. Clark, $6; 3d, W. H. Heustis, $4.

*Gratuities:—*

Lager & Hurrell, Display of Orchids, $10.

R. & J. Farquhar & Co., Display of Palms, Azaleas, Rhododendrons, Evergreens, etc., $25.

Harvard Botanic Garden, Display of Fuchsias and *Clerodendron Balfouri*, $10.

Mrs. J. B. Lawrence, Display of Ornamental Trees and Shrubs, $2.

William Whitman, Display of Iris, $2.

Horatio C. Meriam, " " " $2.

Mrs. John L. Gardner, Display of Rhododendrons, $5.

Harvard Botanic Garden, Display of Hardy Herbaceous Plants, $20.
Mrs. J. B. Shurtleff, Jr., Display of Aquilegias, $1.
Mrs. L. Towle, Pansies, $1.
Benj. P. Ware, Display of Tree Peonies, $2.
Mrs. E. M. Gill, Display of flowers, $4.
Mrs. J. B. Lawrence, Herbaceous flowers, $2.
Wm. C. Winter, Display of Rhododendrons, $2.

## Peony Exhibition.

### June 11.

*Kelway Prize.*

Herbaceous Peonies.—Collection of eighteen named varieties, single or double:
1st, A. H. Fewkes, Silver Gilt Medal; 2d, George Hollis, Bronze Medal.

*Society's Prizes.*

Herbaceous Peonies.—Collection of twelve or more varieties, single:
1st, T. C. Thurlow, $4.
Vase of blooms on long stems, arranged for effect:
1st, Mrs. J. L. Gardner, $10; 2d, E. A. Clark, $6.

*Gratuities:—*

George Hollis, Display, named varieties of Peonies, $3.
E. J. Shaylor, " " " " " $5.
T. C. Thurlow, " " " " " $3.
W. H. Heustis, Collection of Hardy Shrubs, $4.
Mrs. J. B. Lawrence, Collection of Herbaceous Plants, $1.
Mrs J. L. Gardner, Vase of Peonies, $3.
Mrs. E. M. Gill, Display of Peonies, $5.

## Rose and Strawberry Exhibition.

### June 21 and 22.

Herbaceous Peonies.—Collection of thirty or more named varieties, double:
1st, T. C. Thurlow, $12; 2d, A. H. Fewkes, $8; 3d, Means Estate, $6; 4th, George Hollis, $4.

*Theodore Lyman Fund.*

Hardy Roses.—Twenty-four distinct named varieties, three of each:
1st, Miss S. B. Fay, $25; 2d, E. A. Clark, $20; 3d, Miss S. B Fay, $15.

*Sarah B. Fay Prizes. Amateur.*

Hardy Roses.—For the largest and best collection named, not less than twelve varieties:
1st, Mrs. O. S. Paige, $25; 2d, Mrs. E. Wilkie, $15; 3d, Mrs. Day Chadwick, $10.

*Society's Prizes.*

HARDY ROSES.—Twelve named varieties, three of each:
1st, Miss S. B. Fay, $12; 2d, Jos. H. White, $8; 3d, A. F. Estabrook, $6.
Six named varieties, three of each:
1st, Miss S. B. Fay, $6; 2d, Jos. H. White, $4.
Twenty-four named varieties, one of each:
1st, Miss S. B. Fay, $12; 2d, E. A. Clark, $8.
Eighteen named varieties, one of each:
1st, Jos. H. White, $8.
Twelve named varieties, one of each:
1st, Jos. H. White, $6.
Six named varieties, one of each:
1st, W. A. L. Bazeley, $4; 2d, A. F. Estabrook, $3.
Twenty-four blooms of Mme. Gabriel Luizet:
1st, Miss S. B. Fay, $6; 2d, Mrs. E. M. Gill, $4; 3d, Jos. H. White, $3.
Six blooms Alfred Colomb:
1st, Miss S. B. Fay, $3.
Six blooms Baroness Rothschild:
1st, Mrs. O. S. Paige, $3.
Six blooms Mrs. John Laing:
1st, Mrs. O. S. Paige, $3.
Six blooms General Jacqueminot:
1st, Miss S. B. Fay, $3; 2d, Mrs. O. S. Paige, $2.
Six blooms Ulrich Brunner:
1st, Miss S. B. Fay, $3.
Six blooms any other variety:
1st, Mrs. O. S. Paige, Baron de Bonstetten, $3; 2d, Wm. Whitman, Victor Verdier, $2; 3d, Mrs. O. S. Paige, Hyppolyte Jamain, $1.
Best three blooms of a variety introduced since 1901:
1st, Miss S. B. Fay, J. S. Fay, $3.
General Display.—One hundred bottles of Hardy Roses:
1st, Miss S. B. Fay, $15; 2d, Mrs. E. M. Gill, $10; 3d, Dr. C. G. Weld, $8; 4th, Peter Cairns, $6; 5th, Walter Hunnewell, $5.
SWEET WILLIAMS.—Display, eighteen vases of three trusses each:
1st, Wm. Whitman, $3; 2d, Wm. Whitman, $2; 3d, A. McLaren, $1.

*Gratuities:—*

Mrs. J. L. Gardner, Gloxinias and foliage plants, $8.
J. S. Bailey, Group of Palms, $20.
E. A. Clark, Collection of Gloxinias, $8.
E. J. Shaylor, Display of Peonies, $5.
Dr. Charles S. Minot, Display of Peonies, $3.
T. C. Thurlow, " " " $5.
George Hollis, Display of Seedling Peonies, $5.
Mrs. E. M. Gill, Display of Peonies, $3.

Dr. C. G. Weld, Vase of Peony, Baroness Schrœder, $1.
Peter Fisher, Display of Carnations, $3.
Patten & Co., Vase of Carnation, Mrs. M. A Patten, $1.
Mrs. J. B. Lawrence, Display of flowers, $1.
W. H. Heustis, Herbaceous Plants and Shrubs, $2.
Blue Hill Nurseries, Display of Herbaceous Plants, $8.
Harvard Botanic Garden, Display of Herbaceous Plants and Aquatics, $12.
Frederic J. Rea, *Campanula persicifolia grandiflora*, $1.
Miss Sarah B. Fay, Display of Roses, $3.
Mrs. J. L. Gardner, two vases Peonies, $2.

JULY 9.

HARDY ROSES.—Collection, named, not less than twelve varieties, filling fifty vases, one rose in each vase:
2d, Miss S. B. Fay, $8; 3d, Miss S. B. Fay, $4.

IRIS KEMPFERI.—Collection of varieties, filling twenty-five vases:
1st, William Whitman, $8; 2d. Mrs. J. L. Gardner, $5.

CAMPANULA MEDIUM.—Collection, not less than fifteen bottles:
1st, William Whitman, $4.

DELPHINIUMS.— Display, thirty vases of three spikes each:
1st, Mrs Winthrop Chanler, $10; 2d, William Whitman, $6; 3d, Mrs. J. L. Gardner, $4.

HARDY HERBACEOUS FLOWERS AND GRASSES.—Thirty bottles:
1st, Walter Hunnewell, $8; 2d, W. J. Clemson. $6; 3d, Bay State Nurseries, $4.

*Gratuities:—*

Blue Hill Nurseries, Display of Herbaceous Plants, $10.
Carl Blomberg, " " " " $5.
George Hollis, Display of flowers, $1.
Lyman H. Atkins, Collection of Poppies, $2.
Mrs. E. M. Gill, Display of flowers, $2.
M. H. Walsh, Display of Cut Rambler Roses, $5.
Harvard Botanic Garden, Display of Herbaceous Plants, $12.
Peter Cairns, Roses and Iris, $3.

JULY 16.

SWEET PEAS.—Display of named varieties, filling thirty vases:
1st, W. J. Clemson, $10; 2d, E. A. Clark, $6; 3d, Wm Whitman, $4.
Display of twelve named varieties, twelve sprays of each:
1st, E. A. Clark, $4; 2d, W. J. Clemson, $3; 3d, Mrs. E M Gill, $2

*Gratuities:—*

Mrs. E. M. Gill, Display of flowers, $3.
Mrs. J. B. Lawrence, Display of Herbaceous Flowers, $2.
E. A. Clark, Display of Hybrid Pentstemons, $3.
H. H. Rogers, Display of Tuberous Begonias, $2.
Lyman H. Atkins, Display of Shirley Poppies, $2.

JULY 23.

ACHIMENES.—Six, in not over ten-inch pans or pots, of six varieties:
2d, Mrs. J. L. Gardner, $6.

HARDY AQUATIC FLOWERS.—Collection, named:
2d, Mrs. J. L. Gardner, $8.

*Gratuities:—*

Mrs. E. M. Gill, Collection of flowers, $3.
William Whitman, Display of Herbaceous Phlox, $5.
Harvard Botanic Garden, Display of Aquatic Flowers, $10.
W. A. Manda, Collection of Lælias and Cattleyas, $4.

JULY 30.

HARDY HERBACEOUS FLOWERS AND GRASSES—Thirty bottles:
1st, Carl Blomberg, $8; 2d, Walter Hunnewell, $6; 3d, The Bay State Nurseries, $4.

*Gratuities:—*

William Whitman, Display of flowers, $5.
Mrs. E. M. Gill, " " " $1.
Mrs. L. Towle, Dahlias and Sweet Peas, $2.
L. H. Atkins, Display of flowers grown in back yard of apartment house, $1.
Harvard Botanic Garden, Herbaceous Flowers and Plants, $8.
Peter Cairns, Hollyhocks, $1.
The Blue Hill Nurseries, Display of Herbaceous Phlox, $5.

AUGUST 6.

PERENNIAL PHLOXES.—Twelve named varieties, one truss of each:
1st, Blue Hill Nurseries, $8; 2d, William Whitman, $6; 3d, T. C. Thurlow, $4; 4th, George Hollis, $2.

*Gratuities:—*

William Whitman. Display of flowers, $4.
Blue Hill Nurseries, Display of Phlox, $2.
Mrs. J. B. Lawrence, Display of Sweet Peas, $2.
Mrs. E. M. Gill, Display of Phlox, $2.

AUGUST 13.

ANNUALS.—General Display, named, not less than fifty varieties:
1st, Mrs. J. L. Gardner, $10.

*Gratuities:—*

Mrs. L. Towle, Dahlias and Annuals, $3.
Bay State Nurseries, Display of Hardy Phlox, $3.
Wm. Whitman, General Display and collection of Ferns, $5.
Mrs. E. M. Gill, General Display, $2.
Harvard Botanic Garden, two tables of Annuals, $8.
Mrs. A. W. Blake, Specimen plant of *Eucharis Amazonica*, $3.

AUGUST 20.

PERENNIAL PHLOXES.—General Display in not less than thirty vases:
1st, T. C. Thurlow, $6; 4th, Anthony McLaren, $2.

*Gratuities:—*

Lager & Hurrell, Display of Orchids, $5.
Mrs. E. M. Gill, Display of Flowers, $2.

AUGUST 27.

*Theodore Lyman Fund.*

ASTERS.—Of all classes, fifty vases, not less than twelve varieties:
1st, Mrs. J. L. Gardner, $8; 2d, W. J. Clemson, $6.
HARDY HERBACEOUS FLOWERS AND GRASSES.—Thirty bottles:
1st, Carl Blomberg, $8; 2d, Walter Hunnewell, $6.

*Gratuities:—*

E. L. Wheeler, Seedling Gladioli, $1.
W. G. Winsor, Collection of Dahlias, $4.
Mrs. L. Towle, " " " $3
Mrs. E. M. Gill, Display of flowers, $2.

SEPTEMBER 3.

*Gratuity:—*

W. G. Winsor, Display of Dahlias, $3.

ANNUAL EXHIBITION.

SEPTEMBER 22, 23, 24, 25

PALMS.—Pair in pots or tubs:
1st, Mrs. J. L. Gardner, $15; 2d, A. F. Estabrook, $12; 3d, J. S. Bailey, $8.
GREENHOUSE PLANTS.—Best finished group, containing foliage plants of all descriptions, arranged for effect.

1st, Mrs. J. L. Gardner, $50; 2d, J. S. Bailey, $35.

Six Greenhouse and Stove Plants, decorative specimens of different named varieties:

1st, Mrs. J. L. Gardner, $20; 2d, J. S. Bailey, $15.

Flowering Greenhouse Plant.—Single specimen, named:

2d, Peter Cairns, $6.

Caladiums.—Six named varieties:

2d, A. F. Estabrook, $8.

Ferns.—Five named varieties:

1st, J. S. Bailey, $12; 2d, A. F. Estabrook, $8; 3d, Mrs. J. L. Gardner, $6.

Specimen other than Tree Fern:

1st, J. S. Bailey, $4; 2d, Mrs. J. L. Gardner, $3.

Adiantums.—Five named varieties:

1st, Mrs. J. L. Gardner, $10; 2d, A. F. Estabrook, $6.

Dracænas.—Six named varieties:

1st, Mrs. J. L. Gardner, $8; 2d, J. S. Bailey, $6.

Crotons.—Twenty-five plants, not less than eighteen named varieties:

1st, J. S. Bailey, $12.

Cycad.—Single plant, named:

1st, A. F. Estabrook, $8.

Begonia Rex.—Ten pots of ten varieties:

1st, Mrs. J. L. Gardner, $10.

Ouvirandra Fenestralis.—

1st, Mrs. J. L. Gardner, $6.

*Theodore Lyman Fund.*

Aquatics.—General Display of Nymphæas, Nelumbiums, Sedges, Papyrus, and any other Aquatic Plants:

1st, Bayard Thayer, $18.

Gladioli.—Twenty-five named varieties, in spikes:

1st, J. K. Alexander, $5.

Display of named and unnamed varieties, filling one hundred vases, arranged for effect:

1st, W. P. Lothrop, $8.

*Society's Prizes.*

Dahlias.—Show, eighteen blooms, named varieties:

1st, E. W. Ela, $4; 2d, J. K. Alexander, $3; 3d, W. C. Winter, $2.

Fancy, eighteen blooms, named varieties:

1st, E. W. Ela, $4; 2d, Wm. C. Winter, $3; 3d, H. F. Burt, $2.

Cactus, twelve blooms, named varieties:

1st, E. W. Ela, $4; 2d, J. K. Alexander, $3; 3d, H. F. Burt, $2.

Decorative, twelve blooms, named varieties:

1st, Wm. C. Winter, $3; 2d, E. W. Ela, $2; 3d, Geo. D. Cook, $1.

Show, twelve blooms, named varieties:

1st, W. P. Lothrop, $3; 2d, Wm. C. Winter, $2; 3d, E. W. Ela, $1.

Fancy, twelve blooms, named varieties:
1st, E. W. Ela, $3; 2d, H. F. Burt, $2; 3d, Wm. C. Winter, $1.
Best single bloom, of any class, introduction of 1902 or later:
1st, Geo. D. Cook, Mrs. Roosevelt, $2; 2d, H. F. Burt, Mrs. DeLuca, $1
Pompon, twelve vases of three blooms each, named varieties:
1st, J. K. Alexander, $3; 2d, Wm. C. Winter, $2; 3d, W. P. Lothrop, $1.
Single, twelve vases of three blooms each, named varieties:
1st, E. W. Ela, $3; 2d, W. P. Lothrop, $2; 3d, Wm. C. Winter, $1.
General Display, one hundred or more bottles, in Society's racks:
1st, Wm. C. Winter, $8; 2d, G. H. Walker, $6; 3d, J. K. Alexander, $4.

Hardy Herbaceous Flowers and Grasses.—Thirty bottles:
1st, Carl Blomberg, $8; 2d, Mrs. E. M. Gill, $6.

*Gratuities:—*

R. & J. Farquhar & Co., Display of Decorative Plants, $30
Edward J. Mitton, Display of Orchids and Ferns, $5.
A. F. Estabrook, Solanums, $3.
Mrs. J. L. Gardner, Display of plants, $6.
Harvard Botanic Garden, " " " $50.
Julius Roehrs, Display of Orchids, $8.
Lager & Hurrell, " " " $10.
Mrs. M. L. Atwood, Window cultivation of Achimenes, $3.
E. W. Ela, Display of Dahlias, $2.
R. P. Struthers, " " " $2.
J. W. Keefe, " " " $1.
John Mason Little, " " " $1
H. E. Stone, " " " $4.
Mrs. E. M. Gill, Display of flowers, $2.
Blue Hill Nurseries, Display of Herbaceous Plants, $4
Waldo L. Wheeler, Display of Gladioli, $2.
J. E. Rothwell, Display of Orchids, $6.

## Chrysanthemum Show.

November 3, 4, 5, 6.

### Plants.

*Henry A. Gane Memorial Fund.*

Chrysanthemums.—For the best specimen plant of Marcia Jones.
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $5.

*Society's Prizes.*

Display of eight named plants, in not over twelve-inch pots:
1st, Herbert Dumaresq, $75; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $50; 3d, Jason S. Bailey, $40.

Three Japanese, Incurved:
1st, E. W. Converse, $12; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $8; 3d, J. S. Bailey, $6.

Three Reflexed, distinct named varieties:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $12; 2d, E. W. Converse, $8.

Two Anemone Flowered, distinct named varieties:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $8; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $6.

Specimen, Japanese Incurved, named variety:
1st, E. W. Converse, $6; 2d, Herbert Dumaresq, $4; 3d, Herbert Dumaresq, $3.

Specimen, Reflexed, named variety:
1st, Herbert Dumaresq, $6; 2d, E. W. Converse, $4; 3d, E. W. Converse, $3.

Specimen, Pompon, named variety:
1st, E. W. Converse, $6; 2d, H. Dumaresq, $4; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $3.

Specimen plant of any variety not included in above classes:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $6; 2d, J. S. Bailey, $4; 3d, E. W. Converse, $3.

Twelve plants, of twelve different varieties, grown to one stem and bloom, in not over six-inch pots:
1st, James Nicol, $8; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $6; 3d, Mrs. C. C. Converse and Mrs. Lester Leland, $4.

Group of Chrysanthemum plants, arranged for artistic decorative effects:
1st, Mrs. J. L. Gardner, $50; 2d, Mrs. C. C. Converse and Mrs. Lester Leland, $40; 3d, E. A. Clark, $30.

FLOWERS.

Representative collection of classes labeled in accordance with the classification of the Chrysanthemum Society of America:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $30.

SPECIAL PRIZES FOR CHRYSANTHEMUMS.

*Josiah Bradlee Fund.*

Twenty-five blooms of twenty-five distinct varieties, named:
1st, E. A. Clark, $18; 2d, P. W. Moen Estate, $12; 3d, Thomas Doliber, $8.

Six vases of six named varieties, ten blooms each:
1st, Thomas Doliber, $30.

*Henry A. Gane Memorial Fund.*

For the best six specimen blooms of Mrs. Jerome Jones, or any of the sports thereof:
1st, James Nicol, $3; 2d, Arthur F. Whitin, $2.

*Society's Prizes.*

Twelve blooms, Incurved, named:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $6.
Twelve blooms, Japanese, named:
1st, Peter B. Robb, $8; 2d, P. W. Moen Estate, $6.
Twelve blooms, Japanese, Incurved, named:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $8; 2d, Peter B Robb, $6; 3d, Morton F. Plant, $4.
Twelve blooms, Reflexed, named:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $8.
Twelve blooms, Anemone, named:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $6.
Twelve sprays, Pompons, distinct:
1st, Mrs. C. C. Converse and Mrs. Lester Leland, $5; 2d, Peter B Robb, $3.
Six best varieties, named, introductions of the current year:
1st, Peter B. Robb, $6.
Vase of ten blooms, on long stems, Pink, named:
1st, Morton F. Plant, Dr. Enguehard, $10; 2d, E. D Jordan, Wm Duckham, $8; 3d, Thomas Doliber, Viviand-Morel, $6.
Vase of ten blooms, on long stems, Red, named:
1st, Mrs. M. W. Pierce, J. Shrimpton, $10.
Vase of ten blooms, on long stems, White, named:
1st, E. A. Clark, Merza, $10; 2d, G. W. Knowlton, Timothy Eaton, $8; 3d, Thomas Doliber, Ben Wells, $6.
Vase of ten blooms, on long stems, Yellow, named:
1st, Thomas Doliber, Col. D. Appleton, $10; 2d, G W Knowlton, Col. D. Appleton, $8; 3d, A. Herrington, Cheltoni, $6.
Vase of ten blooms, on long stems, any other color, named:
1st, A. F. Whitin, Wm. R. Church, $10; 2d, E. A. Clark, Kate Broomhead, $8; 3d, Herbert Dumaresq, Lady Hanham, $6

ADDITIONAL SPECIAL PRIZES

*Massachusetts Horticultural Society.*

For the best fifty blooms of Chrysanthemums, of one or more varieties, to be shown in the Society's large China vases:
1st, E. A. Clark, $60; 2d, Herbert Dumaresq, $50; 3d, Thomas Doliber, $40; 4th, M. F. Plant, $30; 5th, Eben D Jordan, $20

*Gardeners' and Florists' Club of Boston.*

For twelve blooms of any Chrysanthemum of current season's introduction in America:
1st, A. Herrington, Cheltoni, $25; 2d, E. A. Clark, Cheltoni, $15.

*William Nicholson.*

For the best vase of one hundred White Carnations:
1st, Peter Fisher, Seedling Number 411, $10.

*Patten & Company.*

For the best vase of fifty blooms of Carnation, Mrs. Patten:
1st, Wm. Nicholson, $10.

*Peter Fisher.*

For the best vase of fifty blooms of Carnation, Nelson Fisher:
1st, M A. Patten, $10.

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Orchids.—Display of named species and varieties, filling not less than twenty bottles:

1st, F. L. Ames Estate, Appleton Silver Gilt Medal; 2d, Col. Charles Pfaff, Appleton Silver Medal; 3d, Edward MacMulkin, Appleton Bronze Medal.

*Gratuities:—*

Edward MacMulkin, Display of Orchids, $30.
R. & J. Farquhar & Co., Palms and Begonias, $20.
Lager & Hurrell, Display of Orchids, $15.
F. R. Pierson Co., " " Tarrytown Fern, $8.
A. M. Davenport, " " Ferns and Cyclamen, $8.
Backer & Co., three vases Carnations, $3.
H. A. Stevens Co., five vases Carnations, $5.
J. D. Thompson Co., vase of Carnation, Estelle, $1.
M. A. Patten, vase of Carnation, Mrs. Patten, $2.
Wm. Nicholson, " " " $3.
Waban Rose Conservatories, vase of American Beauty Roses, $5.
Mrs. Cornelius Vanderbilt, Display of *Amaryllis belladonna* and Gardenias, $5.
Thomas Doliber, Display of Chrysanthemums, $20.
E. A. Clark, " " " $2.
J. B. Shurtleff, Jr., " " Pansies, $1.
Mrs. E. M. Gill, " " Chrysanthemums, $6.
Carl Jurgens, vase of Rose, Augusta Victoria, $1.

November 19.

*Gratuity.*

H. H. Rogers, vase of Chrysanthemum, Dr. Enguehard, $2.

### Society's Gold Medals.

August 6. R. & J. Farquhar & Co., *Lilium Philippinense*

Chrysanthemum Show, November 3, 4, 5, 6. W. Wells & Co., Ltd., Collection of undisseminated Chrysanthemums.

### Society's Silver Medals.

Rose Show, June 21, 22. Prof. Robt. T. Jackson, Richardson seedling Peony, Samuel Henshaw.

August 13. F. L. Ames Estate, Display of cut Orchids

Annual Exhibition, September 22, 23, 24, 25. F. R. Pierson Co., *Nephrolepis exaltata Piersoni compacta*.

Annual Exhibition, September 22, 23, 24, 25. Henry A. Dreer, Display of Aquatics.

Chrysanthemum Show, November 3, 4, 5, 6. John Scott, *Nephrolepis Scotti*.

Chrysanthemum Show, November 3, 4, 5, 6. Sander & Son, *Nicotiana Sanderæ*.

### Society's Bronze Medals.

Rose Show, June 21, 22. Mrs. Harriett R. Foote, Collection of tea and hybrid tea Roses.

### First Class Certificates of Merit.

January 30. W. B. Arnold, Striped sport from Carnation, Mrs. Thomas W. Lawson.

January 30. Robert Cameron, *Acacia Baileyana*.

Spring Exhibition, March 24. M. H. Walsh, Rambler rose, Wedding Bells.

" " " " M. H. Walsh, " " Babette.

" " " " Louis Dupuy, *Hydrangea hortensis rosea*.

" " " " E. O. Orpet, Cattleya × Katherine, (*C. Warneri* × *C. Schroderæ alba*).

Spring Exhibition, March 24. F. R. Pierson Co., New Fern, Sport from *Nephrolepis Piersoni* (*N. Piersoni compacta*).

Spring Exhibition, March 24. F. R. Pierson Co., White Lawson Carnation.

Spring Exhibiton, March 24. A. Roper, Seedling Carnation, Chester Roper.

May Exhibition, May 7. J. E. Rothwell, Lælia × Latona, (*L. elegantissima* × *L. purpurata*).

" " " " L. E. Small, Seedling Carnation, Number 3.

Peony Exhibition, June 11. E. J. Shaylor, Peony, Lady Alexandra Duff.

" " " " Prof. Robt. T. Jackson, Richardson seedling Peony, Ferdinand Stoliczka.

Peony Exhibition, June 11. Prof. Robt. T. Jackson, Richardson seedling Peony, Charles Sedgwick Minot.

Peony Exhibition, June 11. T. D. Hatfield, Seedling Peony, Number 1.
" " " " T. D. Hatfield, " " " 2.
Rose and Strawberry Exhibition, June 21. E. J. Shaylor, new Peony, Mme. Emile Lemoine, (Lemoine).
Rose and Strawberry Exhibition, June 21. E. J Shaylor, new Peony, Marguerite Gerard, (Crousse).
Rose and Strawberry Exhibition, June 21. George Hollis, seedling Peony, Mary Louise Hollis.
Rose and Strawberry Exhibition, June 21. George Hollis, seedling Peony, Sunrise.
Rose and Strawberry Exhibition, June 21. A. H. Fewkes, new Peony, Avalanche, (Crousse).
Rose and Strawberry Exhibition, June 21. Prof. Robt. T. Jackson, Richardson seedling Peony, John Richardson.
Rose and Strawberry Exhibition, June 21. Prof. Robt. T. Jackson, Richardson seedling Peony, Walter Faxon.
Rose and Strawberry Exhibition, June 21. Jackson Dawson, seedling Rose, Minnie Dawson.
July 9. J. E. Rothwell, Cypripedium, Mrs. J. E. Rothwell. (*C. almum* × *C. niveum*).
August 6. F. L. Ames Estate, *Rehmannia angulata*.
" 13. Blue Hill Nurseries, Display of one hundred varieties of herbaceous plants.
" 20. Joseph H. White, new Phlox, Tapis blanc.
Annual Exhibition, September 22-25. Henry A. Dreer, *Nymphæa dentata superba*.
Annual Exhibition, September 22-25. Henry A. Dreer, *Nymphæa Zanzibariensis Pennsylvania*.
Annual Exhibition, September 22-25. Blue Hill Nurseries, *Kniphofia Pfitzerii*.
Chrysanthemum Show, November 3-6. Guttman & Weber, seedling Carnation, Victory.
Chrysanthemum Show, November 3-6. Waban Rose Conservatories, seedling Rose, Wellesley.
Chrysanthemum Show, November 3-6. Cottage Gardens, seedling Carnation, Robert Craig.
Chrysanthemum Show, November 3-6. Chicago Carnation Co., seedling Carnation, Fiancée.
November 19. James Garthley, seedling Pompon Chrysanthemum, Victoria.

### Honorable Mention.

Spring Exhibition, March 24-27. Julius Roehrs, *Livistona Woodwardii*.
" " " " L. E. Small, seedling Carnation, Number 3.

Spring Exhibition, March 24-27. S. J. Goddard, seedling Carnation, Helen Goddard.
Spring Exhibition, March 24-27. John N. May, " " The Bride.
Spring Exhibition, March 24-27. John N. May, new Rose, Gen. McArthur
May Exhibition, May 7. Geo. F. Fabyan, Pelargonium, Miss Henderson.
Rhododendron Exhibition, June 4-5. Horatio C. Meriam, new German Iris, Madonna alba.
Peony Exhibition, June 11. Geo. Hollis, seedling Peony, Number 623.
Rose and Stawberry Exhibition, June 21-22. Geo. Hollis, seedling Peony, Number 986, 1904.
Rose and Strawberry Exhibition, June 21-22. George Hollis, " " Number 181, 1902.
Rose and Strawberry Exhibition, June 21-22. George Hollis, " " Number 279, 1902.
Rose and Strawberry Exhibition, June 21-22. George Hollis, " " Number 732, 1904.
Rose and Strawberry Exhibition, June 21-22. George Hollis, " " Number 491, 1903.
Rose and Strawberry Exhibition, June 21-22. George Hollls, " " Beauty's Mask.
Rose and Strawberry Exhibition, June 21-22. Walter Hunnewell, Campanula from Siberia.
Rose and Strawberry Exhibition, June 21-22. Jackson Dawson, seedling Rose, *Rosa Wichuraiana* × *Triomphe de Luxembourg*.
July 9. J. E. Rothwell, Cypripedium × Burbidgeanum. (*C. Dayanum* × *C. concolor*).
" 9. F. L. Ames Estate, Sweet Pea, Scarlet Gem.
" 16. H. H. Rogers, double tuberous Begonia, Gold of Ophir.
" 16. H. H. Rogers, tuberous Begonia, *Grandiflora erecta cristata*.
" 16. F. L. Ames Estate, Sweet Pea, White Wonder.
" 16. F. L. Ames Estate, " " King Edward VII.
" 16. F. L. Ames Estate, " " Dorothy Eckford.
" 23. Edward Kirk, seedling hardy Carnation, bright scarlet.
" 23 W. A. Manda, *Lalia elegans*, Mrs. Geo. Schlegel.
" 23. W. A. Manda, " " Number 200.
August 6. Blue Hill Nurseries, seedling Phlox, red, Number 17
" 6. Blue Hill Nurseries, " " pink, Daybreak
" 6. W. N. Craig, seedling Phlox, Number 3.
" 6. F. S. Davis, white bush Dolichos.
" 13. Wm. Whitman, new Delphiniums.
" 20. R. & J. Farquhar & Co., Display of Lilium auratum
" 20. Lager & Hurrell, Display of *Lalia elegans*.
" 27. Lyman H. Atkins, Display of flowers grown in apartment-house yard.

Chrysanthemum Show, November 3-6. A. M. Davenport, sport from *Nephrolepis Piersoni*.

Chrysanthemum Show, November 3-6. S. J. Goddard, seedling Carnation, Number 9.

Chrysanthemum Show, " " Peter Fisher, " " Number 113.

Chrysanthemum Show, " " J. D. Thompson Carnation Co., seedling Carnation, Gibson Beauty.

Chrysanthemum Show, November 3-6. M. A. Patten, pink sport from Carnation, Mrs. M. A. Patten.

Chrysanthemum Show, November 3-6. H. A. Jahn, seedling Carnation, Wild Rose.

Chrysanthemum Show, November 3-6. H. A. Jahn, seedling white Carnation, Number 9.

Chrysanthemum Show, " " George B. Anderson, seedling Carnation, Number 10.

Chrysanthemum Show, " " R. & J. Farquhar & Co., collection of Chrysanthemums from Japan.

Chrysanthemum Show, November 3-6. T. Devoy & Son, new Geranium, Telegraph.

Chrysanthemum Show, " " John Cook, unnamed seedling white Rose.

Chrysanthemum Show, " " Mrs. Philip Dexter, seedling white Chrysanthemum.

## Votes of Thanks

January 30. R. & J. Farquhar & Co., Display of Palms, Begonias, and Primulas.

January 30. J. Montgomery Sears, Display of Begonia Gloire de Lorraine.

" " Lager & Hurrell, Display of Orchids.

" " F. L. Ames Estate, *Cœlogyne cristata*, Chatsworth var.

February 13. Walter Hunnewell, *Odontoglossum Midgleyanum*.

Spring Exhibition, March 24-27. Louis Dupuy, Display of Plants.

" " " " Julius Roehrs, Display of Plants.

" " " " R. & J. Farquhar & Co., Display of Plants.

" " " " Walter Hunnewell, Display of Amaryllis.

" " " " Edmund W. Converse, Display of Palms, Cyclamens, and Primulas.

Spring Exhibition, March 24-27. Lager & Hurrell, Dispay of Orchids.

" " " " Arthur Clark, forced native Orchids and Violets.

Spring Exhibition, March 24-27. Walter Hunnewell, *Amorphophallus Rivieri*.

Spring Exhibition, March 24-27. Bussey Institution, Display of Plants.
" " " " Eugene V. R. Thayer, seedling Orchids.
" " " " J. E. Rothwell, Display of Orchids.
" " " " Harvard Botanic Garden, *Echinocactus Visnaga*.
Spring Exhibition, March 24-27. M. A. Patten, vase of zonale Pelargoniums.
Spring Exhibition, March 24-27. E. A. & W. K. Wood, vase of Mignonette.
" " " " Mrs. J. M. Sears, Gardenia flowers.
" " " " Miss E. Jackson Clark, vase of seedling Carnations.
Spring Exhibition, March 24-27. W. P. Winsor, *Dendrobium atroviolaceum*.
May Exhibition, May 7, Walter Hunnewell, *Aeuba Japonica femina*.
May 28, James L. Little, four varieties of English Carnations.
Rhododendron Exhibition, June 4-5. Walter Hunnewell, display of *Richardia Elliottiana* and Rhododendrons.
Rhododendron Exhibition, June 4-5. Eugene V. R. Thayer, cut sprays of *Odontoglossum crispum*.
Rhododendron Exhibition, June 4-5. C. W. Parker, *Iris pallida Dalmatica*.
Peony Exhibition, June 11. O. B. Hadwen, Collection of Peonies.
" " " " Walter Hunnewell " " "
" " " " Mrs. J. L. Gardner, vase of Peonies.
" " " " Walter Hunnewell, Display of Rhododendrons.
Rose and Strawberry Exhibition, June 21-22. Mrs. J. L. Gardner, Gloxinias and foliage plants.
Rose and Strawberry Exhibition, June 21-22. J. L. Bailey, Group of Palms.
" " " " " " E. A. Clark, Collection of Gloxinias.
Rose and Strawberry Exhibition, June 21-22. R. & J. Farquhar & Co., Palms and Peonies.
Rose and Strawberry Exhibition, June 21-22. Prof. R. T. Jackson, Display of Richardson seedling Peonies.
Rose and Strawberry Exhibition, June 21-22. Benj. P. Ware, Rhododendrons.
Rose and Strawberry Exhibition, June 21-22. A. F. Estabrook, vase of Peonies.
Rose and Strawberry Exhibition, June 21-22. Harvard Botanic Garden, Display of herbaceous flowers and aquatics.
Rose and Strawberry Exhibition, June 21-22. Mrs. E. A. Wilkie, Nymphæas.
Rose and Strawberry Exhibition, June 21-22. C. W. Parker, Iris and Digitalis.
Rose and Strawberry Exhibition, June 21-22. Arnold Arboretum, Display of species and varieties of Roses.
Rose and Strawberry Exhibition, June 21-22. Walter Hunnewell, Rhododendrons and Kalmias.

Rose and Strawbery Exhibition, June 21-22. Mrs. George H. Worthley. hybrid Roses.

Rose and Strawberry Exhibition, June 21-22. Dr. C. S. Minot, vase of Peony, Jules Elie.

July 2. Walter Hunnewell, Display of *Iris Kæmpferi*.

" 9. F. L. Ames Estate, Collection of Sweet Peas.

" 9. R. & J. Farquhar & Co., Farquhar Rose and Iris.

" 9. Lyman H. Atkins, Shirley Poppies.

" 9. J. B. Shurtleff, Jr., *Gaillardia grandiflora*.

" 16. E. P. Shaw, Jr., vase of *Lysimachia clethroides*.

" 23. J. W. Manning, *Rhus typhina laciniata*.

" 30. Lyman H. Atkins, Display of flowers grown in back yard of apartment house.

" 30. Blue Hill Nurseries, vase of *Lilium Batemanniæ*.

August 6. T. C. Thurlow, Display of Pnlox.

" 6. F. L. Ames Estate, Display of Phlox and Montbretias.

" 6. C. W. Parker, Display of flowers.

" 6. Peter Cairns, *Monstera deliciosa* and *Strelitzia regina*.

" 20. R. & J. Farquhar & Co., Display of Asters.

" 20. F. L. Ames Estate, Display of Gloxinias.

" 20. Lager & Hurrell, Display of Orchids.

September 3. C. W. Parker, Display of Roses.

Annual Exhibition, September 22-25. J. E. Rothwell, Display of Orchids.

" " " " Henry Wood, Violets.

" " " " A. F. Estabrook, vase of *Helenium autumnale*.

Annual Exhibition, September 22-25. C. W. Parker, Display of Roses.

Chrysanthemum Show, November 3-6. Mrs. J. L. Gardner, *Solandra lævis*,

## Cultural Awards.

### Society's Silver Medals.

August 6. Robert Cameron, superior cultivation of *Pancratium ovatum*.

" 13. Henry Wild, superior cultivation of *Eucharis Amazonica*.

Annual Exhibition, September 22-25. Robert Cameron, superior cultivation of *Phyllotœnium Lindeni*.

December 13. Alexander Ogg, superior cultivation of Begonia Gloire de Lorraine.

### First Class Certificates of Merit.

January 30. Alexander Ogg, superior cultivation of Begonia Gloire de Lorraine.

January 30. Robert Cameron, superior cultivation of *Chorizema ilicifolium*.

January 30. George Melvin, superior cultivation of *Cœlogyne cristata*, Chatsworth var.

February 13. T. D. Hatfield, superior cultivation of *Odontoglossum Midgleyanum*.

Spring Exhibition, March 24-27. Wm. Sim, superior cultivation of Sweet Peas, Mont Blanc and Blanche Ferry.

June 4-5. Edward J. Mitton, superior cultivation of *Lælia majalis*.

" " E. O. Orpet, superior cultivation of *Odontoglossum crispum*.

August 6. W. N. Craig, " " " herbaceous Phlox

Annual Exhibition, September 22-25. Robert Cameron, superior cultivation of *Calathea Makoyana*.

Annual Exhibition, September 22-25. Robert Cameron, superior cultivation of *Calathea Lindeniana*.

Chrysanthemum Show, November 3-6. D. F. Roy, superior cultivation of Chrysanthemum plants.

Chrysanthemum Show, November 3-6. Wm Anderson, superior cultivation of Chrysanthemum plants.

December 13. W. B. Arnold, superior cultivation of Carnation, Variegated Lawson.

ARTHUR H. FEWKES,
WILLIAM N. CRAIG,
JAMES WHEELER,
T. D. HATFIELD,
WILLIAM NICHOLSON,
ROBERT CAMERON,
JOHN A. PETTIGREW.

*Committee on Plants and Flowers.*

# REPORT OF THE COMMITTEE ON FRUITS FOR THE YEAR 1904.

BY E. W. WOOD, CHAIRMAN.

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The past season has hardly been an average one for the fruit growers of Massachusetts. The apple crop has within the past few years become more nearly an annual crop than formerly when we had an abundant crop on the even calendar year but were dependent largely upon growers outside the State for our supply for home consumption on the odd year.

The crop the past season was unevenly distributed over the State, some localities reporting a full crop, but the amount exported from Boston, though something over four hundred thousand barrels, was not quite equal to that of 1903.

The exhibition of apples has not been as large as the average of previous years though the competition on some of the leading varieties was full and close and some fine specimens were shown.

While the Baldwin must be considered the leading market variety for New England, yet in covering the season the Astrachan, Williams, Gravenstein, Hubbardston, Rhode Island Greening, and Roxbury Russet are all desirable and should be found in every orchard. Another variety of more recent introduction in this vicinity, the McIntosh, deserves special mention: it is of medium size, dark red, white flesh of the Fameuse type, a superior table apple, and brings the highest price in the market.

There was a full bloom on the pear trees the past season but an imperfect set of fruit, and the crop was not an average one in quantity. Among growers for market the number of varieties has been somewhat reduced within the past few years. The Bartlett, Bosc, Sheldon, Seckel, Dana's Hovey, Clairgeau, and Anjou, are the most profitable market varieties; but among amateurs who grow for family use many of the old varieties are still retained and it has seemed desirable to continue them in the schedule.

Peaches unless in exceptionally favorable locations have proved a failure the past season; not only were the fruit buds killed but in many places the trees were severely injured and some were killed to the ground during the winter, and the exhibits of this fruit have been small through the season.

The weekly exhibitions through the summer have been well filled considering the unfavorable fruit conditions.

It is more difficult to arrange the schedule of prizes for fruit than for flowers or vegetables, as the latter are grown almost entirely on annual plants or in greenhouses and can be relied on to make their appearance on the tables in due season, while the various fruits are grown on trees or plants exposed to the trying ordeal of our New England winters, and in every year some varieties through partial or entire failure will not compete for the prizes offered.

At the Annual Exhibition in September fifty-four prizes were offered for apples and forty-two were awarded; for pears, seventy-five prizes and sixty-eight awarded; for peaches, twenty-four prizes and thirteen awarded, six of these to one grower. At the Strawberry Exhibition in June there were sixty prizes offered and thirty-seven awarded; and at the exhibition of cherries, June 9, out of fifteen prizes offered eight were awarded.

There has been awarded during the year for prizes and gratuities $973.00, leaving an unexpended balance of our appropriation of $303.00.

## PRIZES AND GRATUITIES AWARDED FOR FRUITS.

### 1904.

### Spring Exhibition.

March 24, 25, 26, 27.

*Gratuity:—*

A. K. Gould, Diel Pears, $1.

## Rose and Strawberry Exhibition.

### June 21 and 22.

*Theodore Lyman Fund.*

Strawberries.—Four quarts of any variety:
1st, J. Ward, $15; 2d, G. V. Fletcher, $12; 3d, V. Frost, $10; 4th, G. F. Wheeler, $8.

*Regular Prizes.*

For the largest and best collection, not less than fifteen baskets of two quarts each, and not less than five varieties:
1st, I. E. Coburn, $15; 2d, G. F. Wheeler, $10.

Ten baskets, not less than three varieties, two quarts each:
1st, G. V. Fletcher, $10; 2d, G F. Wheeler, $8.

Five baskets of one variety, two quarts each:
1st, G. V. Fletcher, $6; 2d, G. F. Wheeler, $5; 3d, W. Wheeler, $4

Two quarts of Belmont:
1st, I. E. Coburn, $3; 2d, G. V. Fletcher, $2.

Brandywine:
1st, M. Sullivan, $3; 2d, G. F. Wheeler, $2

Bubach:
1st, I. E. Coburn, $3; 2d, W. Wheeler, $2; 3d, S. H. Warren, $1

Clyde:
1st, J. Ward, $3; 2d, I. E. Coburn, $2; 3d, W. E. Coburn, $1

Haverland:
1st, I. E. Coburn, $3; 2d, W. Wheeler, $2.

Marshall:
1st, J. Ward, $3; 2d, G. V. Fletcher, $2; 3d, V. Frost, $1

Nick Ohmer:
1st, I. E. Coburn, $3; 2d, W. Wheeler, $2; 3d, W. E. Coburn, $1

Sample:
1st, J. Ward, $3; 2d, S. H. Warren, $2; 3d, W. E. Coburn, $1

Any other variety:
1st, G. F. Wheeler, Minute Man, $3; 2d, I. E. Coburn, Glen Mary, $2; 3d, B. G. Smith, Salem, $1.

One quart of any new variety:
1st, S. H Warren, Seedling, $3; 2d, L. Blanchard, $2

Cherries.—Two quarts of any variety:
1st, G. V. Fletcher, $3; 2d, J. H. Fletcher, $2

Foreign Grapes.—Two bunches of any variety:
1st, Miss E. J. Clark, Black Hamburg, $5; 2d, W. C. Winter, Black Hamburg, $3.

Forced Peaches.—Six specimens of any variety:
1st, Miss E. J. Clark, Hale's Early, $3

*Gratuities :—*

Miss E. J. Clark, for Trees in fruit, a Silver Gilt Medal; Miss E. J. Clark for Grape, Diamond Jubilee, a First Class Certificate of Merit.

JULY 9.

STRAWBERRIES.—Two quarts of any variety :

1st, B. M. Smith, Commonwealth, $3; 2d, B. M. Smith, North Shore, $2.

CHERRIES.—Two quarts of Black Tartarian :

1st, G. V. Fletcher, $3;

Downer :

1st, C. S. Smith, $3; 2d, C. F. Curtis, $2; 3d, M. W. Chadbourne, $1.

Any other variety :

1st, C. S. Smith, Hyde, $3; 2d, Miss V. Chapell, Napoleon, $2; 3d, Miss V. Chapell, Hovey, $1.

*Gratuity :—*

Mrs. J. M. Sears for superior cultivation of Nectarines, a First Class Certificate of Merit.

JULY 16.

CURRANTS.—Two quarts of any Red variety :

1st, W. J. Clemson, Cherry, $3; 2d, G. V. Fletcher, Versaillaise, $2; 3d, E. L. Lewis, Versaillaise, $1.

Two quarts of any White variety :

1st, H. R. Kinney, Grape, $2; 2d, E. L. Lewis, Grape, $1.

GOOSEBERRIES.—Two quarts of any variety of American origin :

1st, W. G. Kendall, Chautauqua, $3; 2d, J. S. Chase, Triumph, $2; 3d, G. L. Brown, $1.

JULY 23.

RASPBERRIES.—Two quarts of any variety :

1st, W. J. Clemson, $3.

CURRANTS.—Two quarts of any Red variety :

1st, W. J. Clemson, $3; 2d, G. V. Fletcher, $2; 3d, E. L. Lewis, $1.

Two quarts of any white variety :

1st, E. L. Lewis, $2; 2d, H. R. Kinney, $1.

GOOSEBERRIES.—Two quarts of any variety :

1st, J. S. Chase, Hero of the Nile, $3; 2d, W. J. Clemson, Triumph, $2; 3d, W. J. Clemson, Columbus, $1.

JULY 30.

APPLES.—Yellow Transparent :

1st, G. L. Brown, $3; 2d, M. Sullivan, $2; 3d, D. L. Fiske, $1.

PEARS.—Summer Doyenne :

1st, W. Fenno, $3; 2d, M. Sullivan, $2; 3d, G. Hollis, $1.

*Gratuity* :—

R. T. Tobey, Apricots, $1.

AUGUST 6.

APPLES.—Red Astrachan :

1st, E. L. Wheeler, $3 ; 2d, W. Fenno, $2 ; 3d, W. Heustis & Son, $1.

Sweet Bough :

1st, G. V. Fletcher, $3 ; 2d, C. B. Travis, $2 ; 3d, W. Heustis & Son, $1.

Any other variety :

1st, G. L. Brown, Yellow Transparent, $3 ; 2d, J. C. Stone, Williams, $2 ; 3d, W. Warburton, Porter, $1.

PEARS.—Giffard :

1st, A. T. Brown, $3 ; 2d, M. Sullivan, $2 ; 3d, C. Scully, $1.

Any other variety :

1st, W. Heustis & Son, Clapp's Favorite, $3 ; 2d, G. V. Fletcher, Clapp's Favorite, $2 ; 3d, W. Fenno, Manning's Elizabeth, $1.

BLACKBERRIES.—Two quarts of any variety :

1st, W. J. Clemson, $3 ; 2d, A. Low, $2.

PEACHES.—Open culture, any variety :

1st, G. V. Fletcher, $3 ; 3d, C. Scully, $1.

AUGUST 13.

APPLES.—Oldenburg :

1st, H. A. Clark, $3 ; 2d, J. L. Bird, $2 ; 3d, D. L. Fiske, $1.

Any other variety :

1st, E. L. Wheeler, Astrachan, $3 ; 2d, M. Sullivan, Yellow Transparent, $2 ; 3d, E. L. Wheeler, Williams, $1.

PEARS.—Clapp's Favorite :

1st, H. A. Clark, $3 ; 2d, A. T. Brown, $2 ; 3d, W. Heustis & Son, $1.

Any other variety :

1st, M. Sullivan, Giffard, $2 ; 2d, W. Fenno, Giffard, $1.

PEACHES.—Twelve specimens, of outdoor culture :

1st, G. V. Fletcher, Carman, $3 ; 2d, F. J. Kinney, Carman, $2 ; 3d, D. L. Fiske, Greensboro, $1.

Six specimens, of cold house or pot culture, of any variety

1st, Mrs. J. C. Whitin, $4 ; 2d, Mrs. J. C. Whitin, $3.

BLACKBERRIES.—Two quarts of any variety :

3d, A. Low, $1.

PLUMS.—Japanese, any variety :

1st, E. L. Lewis, Chabot, $3 ; 2d, E. L. Lewis, Abundance, $2 ; 3d, E. L. Wheeler, Red June, $1.

NECTARINES.—Orchard house cultnre, twelve specimens :

1st, Peter Cairns, Elruge, $4.

FOREIGN GRAPES.—Two bunches of any variety :

1st, W. C. Winter, Black Hamburg, $4 ; 2d, Mrs. J. C. Whitin, Muscat of Alexandria, $3.

AUGUST 20.

APPLES.—Chenango:

1st, C F. Curtis, $3; 2d, E. E. Cole, $2; 3d, G. L. Brown, $1.

Summer Pippin:

1st, W. Fenno, $3.

Williams:

1st, V. Frost, $3; 2d, E. L. Wheeler, $2; 3d, J. C. Stone, $1.

Any other variety:

1st, H. A. Clark, Oldenburg, $3; 2d, E. L. Wheeler, Astrachan, $2; 3d, G. V. Fletcher, Gravenstein, $1.

PEARS.—Rostiezer:

1st, M. Sullivan, $3; 2d, C. F. Curtis, $2.

Tyson:

1st, J. L. Bird, $3.

Any other variety:

1st, F. W. Damon, Clapp's Favorite, $3; 2d, H. A. Clark, Clapp's Favorite, $2; 3d, W. Heustis & Son, Clapp's Favorite, $1.

PEACHES.—Any variety:

1st, G. V. Fletcher, Carman, $3; 2d, H. A. Clark, Hale's Early, $2; 3d, F. H. Evans, Carman, $1.

PLUMS, JAPANESE.—Abundance:

1st, E. L. Lewis, $3; 2d, A. Low, $2; 3d, W. Heustis & Son, $1.

Burbank:

1st, E. L. Lewis, $3; 2d, E. L. Wheeler, $2; 3d, A. Low, $1.

Any other variety:

1st, W. F. Hutchinson, Lincoln, $3; 2d, E. L. Lewis, Bradshaw, $2; 3d, G. V. Fletcher, Bradshaw, $1.

*Gratuity:—*

Mrs. A. E. Monblo, "India" Raspberry, $1.

AUGUST 27.

APPLES.—Gravenstein:

1st, G. V. Fletcher, $3; 2d, H. A. Clark, $2; 3d, E. L. Wheeler, $1.

Porter:

1st, G. V. Fletcher, $3; 2d, W. Heustis & Son, $2; 3d, J. C. Stone, $1.

Any other variety:

1st, E. E. Cole, Alexander, $3; 2d, E. E. Cole, Chenango, $2; 3d, V. Frost, Williams, $1.

PEARS.—Bartlett:

1st, W. Milman, $3; 2d, W. Fenno, $2; 3d, A. T. Brown, $1.

Any other variety:

1st, S. S. Symmes, Clapp's Favorite, $3; 2d, F. E. Coolidge, Clapp's Favorite, $2; 3d, G. V. Fletcher, Clapp's Favorite, $1.

PEACHES.—Collection:

1st, D. L. Fiske, $4.

Single dish:

1st, F. J. Kinney, Carman, $3: 2d, F. H. Evans, Carman, $2; 3d, G. V. Fletcher, $1.

Plums.—Any variety:

1st, E. L. Lewis, Bradshaw, $3: 2d, S. S. Symmes, Bradshaw, $2; 3d, A. Low, Burbank, $1.

Native Grapes.—Any variety, six bunches:

1st, W. G. Kendall, Green Mountain, $3; 2d, J. S. Chase, Green Mountain, $2; 3d, G. V. Fletcher, Moore's Early, $1.

*Gratuity:—*

Peter Cairns, Figs, $1.

## Annual Exhibition.

September 22, 23, 24, 25.

*Theodore Lyman Fund.*

Apples.—Dutch Codlin:

1st, W. Fenno, $3.

Fletcher Russet:

1st, G. V. Fletcher, $3; 2d, C. M. Handley, $2.

Pound Sweet:

1st, G. V. Fletcher, $3.

Washington Royal or Palmer:

1st, A. E. Hartshorn, $3; 2d, H. R. Kinney, $2; 3d, H. J. Sawyer, $1.

Any other variety:

1st, L. F. Priest, Rolfe, $3; 2d, W. G. Kendall, Maiden Blush, $2; 3d, E. E. Cole, Alexander, $1.

*Samuel Appleton Fund.*

Apples.—Baldwin:

1st, E. E. Cole, $3; 2d, J. C. Stone, $2; 3d, G. V. Fletcher, $1.

Hubbardston:

1st, C. M. Handley, $3; 2d, E. R. Teele, $2; 3d, H. J. Sawyer, $1.

Pears.—Bosc:

1st, A. T. Brown, $3; 2d, G. V. Fletcher, $2; 3d, W. G. Kendall, $1.

Sheldon:

1st, G. E. Freeman, $3; 2d, E. Torrey, $2; 3d, J. L. Bird, $1.

*Benjamin V. French Fund.*

Apples.—Gravenstein:

1st, L. F. Priest, $3; 2d, E. M. Bruce, $2; 3d, A. E. Hartshorn, $1.

Rhode Island Greening:

1st, E. E. Cole, $3; 2d, G. V. Fletcher, $2; 3d, J. C. Stone, $1.

*Marshall P. Wilder Fund.*

Pears.—Anjou:

1st, A. T. Brown, $3; 2d, G. V. Fletcher, $2; 3d, W. Milman, $1.

Bartlett:

1st, G. V. Fletcher, $3; 2d, W. J. Wheeler, $2; 3d, W. H. Derby, $1.

Grapes.—Concord, twelve bunches:

1st, J. S. Chase, $3; 2d, W. J. Clemson, $2; 3d, G. V. Fletcher, $1.

Worden:

1st, J. S. Chase, $3.

*Society's Prizes.*

Apples.—Fall Orange or Holden:

1st, C. M. Handley, $3; 2d, H. R. Kinney, $2; 3d, E. Moore, $1.

Foundling:

1st, E. M. Bruce, $3; 2d, O. B. Hadwen, $2; 3d, C. M. Handley, $1.

McIntosh:

1st, F. J. Kinney, $3; 2d, H. K. W. Hall, $2; 3d, C. C. Shaw, $1.

Mother:

1st, H. R. Kinney, $3; 2d, G. L. Brown, $2; 3d, F. J Stone, $1.

Porter:

1st, C. M. Handley, $3; 2d, G. F. Wheeler, $2; 3d, W. J. Wheeler, $1.

Washington Strawberry:

1st, E. Moore, $3; 2d, A. E. Hartshorn, $2.

Wealthy:

1st, L. F. Priest, $3; 2d, M. Sullivan, $2; 3d, C. M. Handley, $1.

Crab Apples.—Transcendent, twenty-four specimens:

1st, Miss L. F. Wiggin, $2.

Any other variety:

1st, L. F. Priest, Hyslop, $2; 2d, Mrs. J. E. Richardson, $1.

Pears.—Angouleme:

1st, E. Torrey, $3; 2d, A. T. Brown, $2; 3d, J. L. Bird, $1.

Clairgeau:

1st, W. J. Wheeler, $3; 2d, C. F. Curtis, $2; 3d, F. W. Damon, $1.

Comice:

1st, A. T. Brown, $3; 2d, J. L. Bird, $2; 3d, W. Fenno, $1.

Dana's Hovey:

1st, F. W. Damon, $3; 2d, W. G. Kendall, $2; 3d, G. V. Fletcher, $1.

Diel:

1st, F. W. Damon, $3; 2d, A. T. Brown, $2; 3d, J. L. Bird, $1.

Fulton:

1st, C. F. Curtis, $3; 2d, J. L. Bird, $2; 3d, W. Fenno, $1.

Hardy:

1st, W. Milman, $3; 2d, E. B. Wilder, $2; 3d, S. S. Symmes, $1.

Howell:

1st, W. A. Green, $3; 2d, W. Fenno, $2.

Josephine of Malines:
1st, J. L. Bird, $3; 2d, W. Fenno, $2; 3d, J. B. Shurtleff, Jr., $1
Lawrence:
1st, M. Sullivan, $3; 2d, A. T. Brown, $2; 3d, S. S. Symmes, $1.
Louise Bonne of Jersey:
1st, A. T. Brown, $3; 2d, C. F. Curtis, $2; 3d, Mrs. C. Whittier, $1
Marie Louise:
1st, E. Torrey, $3; 2d, A. T. Brown, $2; 3d, W. Fenno, $1.
Merriam:
1st, C. F. Curtis, $3; 2d, F. W. Damon, $2; 3d, J. C. Stone, $1
Onondaga:
1st, C. B. Travis, $3; 2d, J. L. Bird, $2; 3d, W. Fenno, $1.
Paradise of Autumn:
1st, W. Milman, $3.
Seckel:
1st, W. G. Kendall, $3; 2d, G. V. Fletcher, $2; 3d, F. W. Damon, $1.
Souvenir du Congres:
1st, A. T. Brown, $3; 2d, W. Fenno, $2; 3d, J. M. Little, $1.
Superfin:
1st, F. W. Damon, $3; 2d, W. Fenno, $2.
Urbaniste:
1st, J. L. Bird, $3; 2d, W. A. Green, $2; 3d, E. B. Wilder, $1.
Any other variety:
1st, C. F. Curtis, Boussock, $3; 2d, E. B. Wilder, Harris, $2; 3d, W. Heustis & Son, Bonne d'Ezee, $1.

Quinces.—Any variety:
1st, G. V. Fletcher, Orange, $3.

Peaches.—Coolidge's Favorite:
1st, G. V. Fletcher, $3; 2d, D. L. Fiske, $2.
Crawford's Late:
1st, D. L. Fiske, $3; 2d, F. J. Stone, $2; 3d, G. V. Fletcher, $1
Crosby:
1st, D. L. Fiske, $3.
Foster:
1st, S. Robinson, $3.
Oldmixon Freestone:
1st, D. L. Fiske, $3; 2d, G. V. Fletcher, $2.
Stump the World:
1st, D. L. Fiske, $3.
Any other variety:
1st, D. L. Fiske, Elberta, $3; 2d, F. H. Evans, Elberta, $2; 3d, S. S. Symmes, Elberta, $1.

Plums.—Coe's Golden Drop:
1st, E. Moore, $2.

Imperial Gage:
1st, G. V. Fletcher, $2.
Lombard:
1st, W. F. Hutchinson, $3; 2d, H. R. Kinney, $2; 3d, A. Low, $1.
Pond's Seedling:
1st, D. McIntire, $2; 2d, E. Moore, $1.
Reine Claude de Bavay:
1st, E. Moore, $2.
Yellow Egg:
1st, G. V. Fletcher, $2.
Any other variety:
1st, G. V. Fletcher, $2; 2d, W. F. Hutchinson, $1.

Japanese Plums.—Any variety:
1st, W. F. Hutchinson, Chabot, $3; 2d, H. R. Kinney, Burbank, $2; 3d, D. L. Fiske, October Purple, $1

Foreign Grapes.—Two bunches of Black Alicante:
1st, Mrs. R. M. Clark, $5.
Two bunches of Lady Downes:
1st, Mrs. R. M. Clark, $5.

Native Grapes.—Six bunches of Brighton:
1st, C. W. Libby, $3; 2d, G. V. Fletcher, $2; 3d, J. S. Chase, $1.
Campbell's Early:
1st, L. Darling, $3.
Delaware:
1st, W. J. Clemson, $3; 2d, W. G. Kendall, $2; 3d, J. S. Chase, $1.
Eumelan:
1st, J. S. Chase, $3.
Herbert:
1st, G. W. Jameson, $3; 2d, C. W. Libby, $2.
Lindley:
1st, C. W. Libby, $3.
Massasoit:
1st, J. S. Chase, $3.
Moore's Early:
1st, F. W. Damon, $3; 2d, G. V. Fletcher, $2.
Niagara:
1st, G. W. Jameson, $3; 2d, J. S. Chase, $2; 3d, F. Y. Wellington, $1.
Pocklington:
1st, S. H. Warren, $3; 2d, C. W. Libby, $2; 3d, F. W. Damon, $1.
Prentiss:
1st, J. S. Chase, $3.
Any other variety:
1st, C. W. Libby, Moore's Diamond, $3; 2d, J. S. Chase, Vergennes, $2; 3d, G. W. Jameson, $1.

## Chrysanthemum Show.

November 3, 4, 5, 6.

*Benjamin V. French Fund.*

Apples.—Baldwin:
1st, C. F. Boyden, $3; 2d, H. A. Clark, $2; 3d, E. E. Cole, $1.
Rhode Island Greening:
1st, G. V. Fletcher, $3; 2d, E. M. Bruce, $2; 3d, E. E. Cole, $1

*Society's Prizes.*

Apples.—Danvers' Sweet:
1st, B P. Ware, $3; 2d, C. M Handley, $2; 3d, C. C. Shaw, $1
Fameuse:
1st, E. E. Cole, $3; 2d, G. V. Fletcher, $2.
Hunt Russet:
1st, C. F. Boyden, $3; 2d, G. F. Wheeler, $2.
Jacobs Sweet:
1st, C. F. Curtis, $3.
McIntosh:
1st, E. M. Bruce, $3; 2d, H. W. K. Hall, $2; 3d, L. J. Kendall, $1
Northern Spy:
1st, I. H. Locke, $3; 2d, E. E. Cole, $2; 3d, G. V. Fletcher, $1.
Roxbury Russet:
1st, J. C. Stone, $3; 2d, C. F. Boyden, $2; 3d, E. E. Cole, $1.
Tolman Sweet:
1st, E E. Cole, $3; 2nd, G. V. Fletcher, $2; 3d, E M. Bruce, $1
Tompkins King;
1st, D. E. Wheeler, $3; 2d, C. F. Boyden, $2; 3d, E. E. Cole, $1
Wagener:
1st, W. H. Spooner, $3.
Any other variety:
1st, Miss A. Chapman, New York Pippin, $3; 2d, A E. Hartshorn, Gravenstein, $2; 3d, L. J. Kendall, $1.

Pears.—Angouleme:
1st, F. W. Damon, $3; 2d, A. T. Brown, $2; 3d, E. Torrey, $1
Anjou:
1st, H. A. Clark, $3; 2d, A. T. Brown, $2; 3d, W Milman, $1
Bosc:
1st, J. B. Shurtleff, Jr., $3; 2d, A. T. Brown, $2; 3d, G. V. Fletcher, $1
Clairgeau:
1st, C. F. Curtis, $3; 2d, F. W. Damon, $2; 3d, A K Gould, $1
Comice:
1st, F. W. Damon, $3; 2d, A. T. Brown, $2; 3d, J. L. Bird, $1

Dana's Hovey:
1st, G. V. Fletcher, $3; 2d, E. W. Wood, $2; 3d, A. T. Brown, $1.
Diel:
1st, A. K. Gould, $3; 2d, F. W. Damon, $2; 3d, A. T. Brown, $1.
Josephine of Malines:
1st, J. L. Bird, $3; 3d, J. B. Shurtleff, Jr., $1.
Lawrence:
1st, M. Sullivan, $3; 2d, E. B. Wilder, $2; 3d, A. T. Brown, $1.
Vicar:
1st, E. B. Wilder, $3; 2d, A. T. Brown, $2; 3d, J. L. Bird, $1.
Any other variety:
1st, W. Milman, Mt. Vernon, $3; 2d, J. L. Bird, Urbaniste, $2; 3d, E. B. Wilder, Langelier, $1.

QUINCES.—Any variety:
1st, I. H. Locke, $3: 2d, E. M. Bruce, $2; 3d, G. V. Fletcher, $1.

*Gratuities:—*

H. J. Thayer, Cranberries, $2; W. Fenno, Collection of Fruit, $5.

E. W. WOOD,
CHARLES F. CURTIS,
WARREN FENNO,
J. WILLARD HILL,
JOHN ASH.
} *Committee on Fruits.*

# REPORT OF THE COMMITTEE ON VEGETABLES FOR THE YEAR 1904.

BY MICHAEL SULLIVAN, CHAIRMAN.

Throughout the past season we have had nearly perfect climatic conditions for the growing of all the various products of the soil, and the vegetables brought in to the exhibitions have been of exceptionally fine quality.

The rules of the Society require that all the specimens shown at our exhibitions shall have been grown by the exhibitors and the committee has had occasion during the present year to strictly enforce these rules.

Although all the earlier exhibitions of the year were fully up to our usual standard it was thought that the Annual Exhibition in September exceeded in quantity and quality anything ever held before. At this exhibition excellent general collections of vegetables were shown by Warren Heustis & Son of Belmont and Edwin L. Lewis of Taunton.

At the exhibition in November, the closing one of the year, there was no lack of interest as was evident in the fine display made. This exhibition is expected to bring out the best results of the harvest of the matured crops of the year, and the many visitors were delighted with the display of fruits and vegetables shown.

Blanched celery was on the tables in great variety and the first prize, a Lowell Silver Medal, was awarded to Warren Heustis & Son of Belmont; the second prize, a Lowell Bronze Medal, was won by Edwin L. Lewis of Taunton.

An exhibit of exceedingly fine Brussels sprouts shown by Mrs. John L. Gardner (William Thatcher, gardener) was awarded a Silver Medal.

The appropriation for vegetables was $900.00 and there has been awarded in prizes and gratuities $885.00, two Silver Medals, and one Bronze Medal.

## PRIZES AND GRATUITIES AWARDED FOR VEGETABLES.

### 1904.

#### January 30

Radishes.—Four bunches:
1st, Varnum Frost, $3; 2d, W. W. Rawson, $2; 3d, A. E. Hartshorn, $1.

Cauliflowers.—Four specimens:
1st, W. H. Teele, $3; 2d, E. R. Teele, $2.

Celery.—Four roots:
1st, W. J. Clemson, $3; 2d, W. Heustis & Son, $2; 3d, W. W. Rawson, $1.

Lettuce.—Four heads:
1st, W. W. Rawson, $3; 2d, J. C. Stone, $2; 3d, A. E. Hartshorn, $1.

Mushrooms.—Twenty-four specimens:
1st, H. A. Stevens Co., $3.

Parsley.—Two quarts:
1st, W. J. Clemson, $2; 2d, A. E. Hartshorn, $1.

Tomatoes.—Twelve specimens:
1st, James L. Little, $3; 2d, J. M. Sears, $2.

#### Spring Exhibition.

#### March 24, 25, 26, 27.

*William J. Walker Fund.*

Radishes.—Four bunches of Turnip Rooted:
1st, A. E. Hartshorn, $3; 2d, W. W. Rawson, $2.

Dandelions.—Peck:
1st, A. E. Hartshorn, $3.

Lettuce.—Four heads:
1st, W. W. Rawson, $3; 2d, J. C. Stone, $2; 3d, Geo. D. Moore, $1.

Parsley.—Four quarts:
1st, A. E. Hartshorn, $2.

*Gratuity:—*

Ed. Parker, Collection, $2.

MAY 7.

*William J. Walker Fund.*

ASPARAGUS.—Four bunches, twelve stalks each:

1st, Varnum Frost, $3; 2d, Ed. Parker, $2.

CUCUMBERS.—Pair of White Spine:

1st, E. M. Bruce, $3; 2d, Varnum Frost, $2; 3d, W. W. Rawson, $1.

Any other variety:

1st, E. M. Bruce, $3; 2d, E. M. Bruce, $2: 3d, E. M. Bruce, $1.

SPINACH.—Peck:

1st, Aaron Low, $3; 2d, A. E. Hartshorn, $2; 3d, J. C. Stone, $1.

DANDELIONS.—Peck:

1st, J. B. Shurtleff, Jr., $3; 2d, Varnum Frost, $2; 3d, A. E. Hartshorn, $1.

RHUBARB.—Twelve stalks, open culture:

1st, Ed. Parker. $3; 2d, A. E. Hartshorn, $2; 3d, J. C. Stone, $1.

LETTUCE.—Four heads:

1st, J. C. Stone, $3; 2d, W. W. Rawson, $2.

*Gratuity:—*

Aaron Low, Collection of Seedling Potatoes, $5.

## RHODODENDRON EXHIBITION.

JUNE 4, 5.

*Theodore Lyman Fund.*

BEETS.—Twelve specimens:

1st, A. E. Hartshorn, $3; 2d, W. W. Rawson, $2.

RADISHES.—Four bunches:

1st, W. W. Rawson, $3; 2d, A. E Hartshorn, $2; 3d, E. L. Lewis, $1.

ASPARAGUS.—Four bunches, twelve stalks each.

1st, Ed. Parker, $3; 2d, A. E. Hartshorn, $2.

CUCUMBERS.—Pair:

1st, W. W. Rawson, $3; 2d, A. E. Hartshorn, $2; 3d, W. J. Clemson, $1.

LETTUCE.—Four heads:

1st, W. W. Rawson, $3; 2d, W. Heustis & Son, $2; 3d, W. J. Clemson, $1.

RHUBARB.—Twelve stalks, open culture:

1st, Ed. Parker, $3; 2d, W. Heustis & Son, $2; 3d, A. E. Hartshorn, $1.

CARROTS.—Four bunches:

1st, W. W. Rawson, $3.

Collection of vegetables, not less than four varieties:

W. J. Clemson, $5.

*Gratuity:—*

Aaron Low, Potatoes, $1.

## Peony Exhibition.

### June 11.

*Gratuities :—*

Aaron Low, Potatoes, $1.
W. Heustis & Son, Lettuce, $1.

## Rose and Strawberry Exhibition.

### June 21, 22.

Beets.—Twelve Turnip Rooted:
1st, Geo. D. Moore, $3; 2d, W. W. Rawson, $2; 3d, J. C. Stone, $1.
Onions.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, W. J. Clemson, $2.
Cucumbers.—Four specimens:
1st, Geo. D. Moore, $3; 2d, W. W. Rawson, $2; 3d, J. C. Stone, $1.
Lettuce.—Four heads:
1st, E. L. Lewis, $3; 2d, A. Nixon, $2; 3d, W. W. Rawson, $1.
Peas.—Half peck, any variety:
1st, E. L. Lewis, $3; 2d, W. J. Clemson, $2; 3d, E. L. Lewis, $1.
Cabbages.—Four specimens:
1st, Geo. D. Moore, $3; 2d, W. J. Clemson, $2; 3d, W. Heustis & Son, $1.
Collection of vegetables, not less than four varieties:
E. L. Lewis, $5.

*Gratuities :—*

Wm. Nicholson, Tomatoes, $1.
W. J. Clemson, Collection, $2.

### July 9.

Onions.—Twelve specimens:
1st, Ed. Parker, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
Squashes.—Summer, four specimens:
1st, J. C. Stone, $3; 2d, A. E. Hartshorn, $2; 3d, A. Nixon, $1.
Cabbages.—Four specimens:
1st, Geo. D. Moore, $3; 2d, W. Heustis & Son, $2; 3d, W. J. Clemson, $1.
Beans.—Half peck:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2; 3d, Ed. Parker, $1.
Peas.—Half peck:
1st, H. R. Kinney, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.

LETTUCE.—Four heads:
1st, E. L. Lewis, $3; 2d, Ed. Parker, $2.
BEETS.—Twelve specimens:
1st, Geo. D. Moore, $3; 2d, A. E. Hartshorn, $2; 3d, Ed. Parker, $1.
CUCUMBERS.—Four specimens:
1st, Geo. D. Moore, $3; 2d, A. E. Hartshorn, $2; 3d, J. C. Stone, $1.
Collection of vegetables, not less than four varieties:
E. L. Lewis, $5.

JULY 16.

*Levi Whitcomb Fund.*

POTATOES.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, W. J. Clemson, $2.
CABBAGES.—Four specimens:
1st, Geo. D. Moore, $3; 2d, W. Heustis & Son, $2; 3d, A. E. Hartshorn, $1.
LETTUCE.—Four heads:
1st, E. L. Lewis, $3; 2d, E. L. Lewis, $2.
BEANS.—Half peck of Butter:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2.
SQUASHES.—Summer, four specimens:
1st, E. L. Lewis, $3; 2d, A. E. Hartshorn, $2; 3d, J. C. Stone, $1.
TOMATOES.—Open culture, twelve specimens:
1st, J. C. Stone, $3; 3d, A. E. Hartshorn, $1.
ONIONS.—Twelve specimens:
1st, A. E. Hartshorn, $3; 2d, Geo. D. Moore, $2; 3d, W. J. Clemson, $1.

*Gratuity:—*

Vincent Buitta, Collection, $1.

JULY 23.

LETTUCE.—Four heads:
1st, E L. Lewis, $2.
BEANS.—Four quarts, any variety:
1st, Wm. Whitman, $3; 2d, Joseph Thorpe, $2; 3d, E. L. Lewis, $1.
PEAS.—Four quarts, any variety:
1st, H. R. Kinney, $3; 2d, Joseph Thorpe, $2; 3d, H. R. Kinney, $1.
SWEET CORN.—Twelve ears, any variety:
1st, Geo. D. Moore, $3; 2d, J. C. Stone, $2; 3d, W. J. Clemson, $1.
ONIONS.—Twelve specimens, any variety:
1st, Geo. D. Moore, $3; 2d, E. L. Lewis, $2; 3d, W. J. Clemson, $1.
TOMATOES.—Twelve specimens, open culture:
1st, E. A. Clark, $3; 3d, J. C. Stone, $1.

JULY 30.

POTATOES.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, J. W. Burns, $2; 3d, E. L. Lewis, $1.
SQUASHES.—Three specimens:
1st, W. Heustis & Son, $3; 2d, E. L. Lewis, $2; 3d, A. E. Hartshorn, $1.
SWEET CORN.—Twelve ears:
1st, Geo. D. Moore, $3; 2d, Geo. D. Moore, $2; 3d, W. J. Clemson, $1.
TOMATOES.—Twelve specimens:
1st, Mrs. Frank Carey, $3; 2d, J. C. Stone, $2.
ONIONS.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, Geo. D. Moore, $2; 3d, W. J. Clemson, $1.
BEANS.—Any variety, four quarts:
1st, Joseph Thorpe, $3; 2d, Wm. Whitman, $2.

*Gratuities:*

W. Heustis & Son, Cabbages, $1.
Vincent Buitta, Collection, $1.

AUGUST 6.

SQUASHES.—Marrow, three specimens:
1st, W. Heustis & Son, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
CABBAGES.—Four specimens:
1st, W. Heustis & Son, $3; 2d, W. Heustis & Son, $2; 3d, A. E. Hartshorn, $1.
BEANS.—Horticultural, four quarts:
1st, Ed. Parker, $3; 2d, Joseph Thorpe, $2; 3d, E. L. Lewis, $1.
SWEET CORN.—Twelve ears:
1st, W. J. Clemson, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
TOMATOES.—Twelve specimens:
1st, J. C. Stone, $3; 2d, Joseph Thorpe, $2; 3d, E. L. Lewis, $1.
ONIONS.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, Geo. D. Moore, $2; 3d, W. J. Clemson, $1.
CARROTS.—Twelve specimens:
1st, E. L. Lewis, $2; 2d, E. L. Lewis, $1.

*Gratuities:—*

Aaron Low, Prodigious Peas, $1.
Geo. R. Hellier, Erfurt Frame Cucumbers, $1.

AUGUST 13.

CARROTS.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, E. L. Lewis, $2; 3d, H. R. Kinney, $1.
MELONS.—Four specimens:
1st, A. E. Hartshorn, $3; 2d, A. Nixon, $2.

ENDIVE.—Four specimens:
1st, Ed. Parker, $3; 2d, E. L. Lewis, $2; 3d, Vincent Buitta, $1.
SWEET CORN.—Twelve ears:
1st, A. E. Hartshorn, $3; 2d, Vincent Buitta, $2; 3d, F. J. Kinney, $1.
EGG PLANTS.—Four specimens:
1st, J. C. Stone, $3; 2d, Ed. Parker, $2; 3d, A E. Hartshorn, $1.
TOMATOES.—Twelve specimens:
1st, Ed. Parker, $3; 2d, A. E. Hartshorn, $2; 3d, J. C. Stone, $1.
ONIONS.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, Geo. D. Moore, $2; 3d, A. E. Hartshorn, $1.
SQUASHES.—Marrow;
1st, W. Heustis & Son, $3; 2d, E. L. Lewis, $2; 3d, A. E. Hartshorn, $1.
Collection of vegetables, not less than four varieties:
E. L. Lewis, $5.

*Gratuities:—*

J. H. Fletcher, Cucumbers, $1.
Geo. D. Moore, Celery, $1.
Vincent Buitta, Collection, $1.

AUGUST 20.

POTATOES.—Twelve specimens, any variety:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, New Queen, $2; 3d, E. L. Lewis, Rose, $1.
ONIONS.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, Geo. D. Moore, $2; 3d, A. E. Hartshorn, $1.
MELONS.—Four specimens:
1st, Varnum Frost, $3; 2d, A. E. Hartshorn, $2.
CELERY.—Four roots, any variety:
1st, E. L. Lewis, $3; 2d, P. Hurley, $2; 3d, Ed. Parker, $1.
LETTUCE.—Four heads:
1st, E. L. Lewis, $3; 2d, E. L. Lewis, $2; 3d, A. E. Hartshorn, $1.
BEANS.—Two quarts, shelled:
1st, E. L. Lewis, $3; 2d, A. E. Hartshorn, $2; 3d, Joseph Thorpe, $1.
SWEET CORN.—Twelve ears of any variety:
1st, E. L. Lewis, $3; 2d, A. E. Hartshorn, $2; 3d, J. C. Stone, $1.
TOMATOES.—Twelve specimens:
1st, A. E. Hartshorn, $3; 2d, Ed. Parker, $2; 3d, J. C. Stone, $1.
PEPPERS.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, E. L. Lewis, $2; 3d, Ed. Parker, $1.
Collection of vegetables, not less than four varieties:
E. L. Lewis, $5.

AUGUST 27.

MELONS.—Four specimens:
1st, Varnum Frost, $3; 2d, A. E. Hartshorn, $2; 3d, A. Nixon, $1.
CABBAGES.—Three of any variety, trimmed:
1st, A. E. Hartshorn, $3; 2d, Mrs. J. L. Gardner, $2; 3d, E. L. Lewis, $1.
CAULIFLOWERS.—Four specimens:
1st, W. H. Teele, $3; 2d, DeSouza Bros., $2.
CELERY.—Four roots:
1st, E. L. Lewis, $3; 2d, P. Hurley, $2; 3d, W. J. Clemson, $1.
BEANS.—Two quarts of Lima:
1st, E. L. Lewis, $3; 2d, W. J. Clemson, $2.
NATIVE MUSHROOMS.—Named collection of not less than five edible varieties:
1st, Boston Mycological Club, $3; 2d, Mrs. H. B. Grinnell, $2.
TOMATOES.—Twelve specimens:
1st, A. E. Hartshorn, $3; 2d, Ed. Parker, $2; 3d, Carl Blomberg, $1.
ONIONS.—Twelve specimens:
1st, E. L. Lewis, $3; 2d, Geo. D. Moore, $2; 3d, W. J. Clemson, $1.
SQUASHES:
1st, W. Heustis & Son, $3; 2d, F. E. Coolidge, $2; 3d, A. E. Hartshorn, $1.
Collection of vegetables, not less than four varieties:
1st, E. L. Lewis, $5.

*Gratuity:—*

Aaron Low, Collection, $1.

## ANNUAL EXHIBITION.

SEPTEMBER 22, 23, 24, 25.

CARROTS.—Twelve long Orange:
1st, E. L. Lewis, $3.
Twelve Intermediate:
1st, Ed. Parker, $3; 2d, E. L. Lewis, $2; 3d, A. E. Hartshorn, $1.
POTATOES.—Twelve Hebron:
1st, E. L. Lewis, $3; 2d, S. B. Bigelow, $2; 3d, W. J. Clemson, $1.
Twelve Rose:
1st, E. L. Lewis, $3; 2d, W. J. Clemson, $2.
Twelve of any other variety:
1st, Elias L. Wheeler, Green Mountain, $3; 2d, A. Nixon, Delaware, $2; 3d, Chas. Scully, Queen, $1.
SALSIFY.—Twelve specimens:
1st, W. J. Clemson, $3; 2d, Ed. Parker, $2; 3d, A. E. Hartshorn, $1.

TURNIPS.—Twelve Flat:
1st, E. L. Lewis, $3; 2d, Ed. Parker, $2.
Twelve Swedish:
1st, Joseph Thorpe, $3; 2d, Mrs. J. L. Gardner, $2.

ONIONS.—Twelve Danvers:
1st, J. B. Shurtleff, Jr., $3; 2d, E. M. Bruce, $2; 3d, Fred Cole, $1.
Twelve Red:
1st, E. M. Bruce, $3; 2d, Ed. Parker, $2; 3d, E. L. Lewis, $1.
Twelve White:
1st, E. M. Bruce, $2; 2d, Geo. F. Wheeler, $1.

SQUASHES.—Three Bay State:
1st, E. L Lewis, $3; 2d, A. E. Hartshorn, $2; 3d, Geo. F. Wheeler, $1.
Three Hubbard:
1st, Geo. F. Wheeler, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.
Three Hybrid Turban:
1st, Geo F. Wheeler, $3; 2d, Wilfrid Wheeler, $2; 3d, A. E. Hartshorn, $1.
Three Marrow:
1st, W. Heustis & Son, $3; 2d, J. C. Stone, $2; 3d, E. L. Lewis, $1.

CUCUMBERS.—Pair of White Spine:
1st, W. W. Rawson, $4; 2d, A. E. Hartshorn, $3; 3d, E. L. Lewis, $2.
Pair of any other variety:
1st, E. L. Lewis, $3; 2d, Joseph Thorpe, $2.

MELONS.—Four specimens:
1st, A. E. Hartshorn, $3; 2d, Taunton Asylum, $2; 3d, E. L. Lewis, $1.

WATERMELONS.—Two specimens:
1st, Joseph Thorpe, $3; 2d, A. E. Hartshorn, $2; 3d, E. L. Lewis, $1.

BRUSSELS SPROUTS.—Half peck:
1st, A. E. Hartshorn, $3; 2d, W. J. Clemson, $2.

CABBAGES.—Three Drumhead, trimmed:
1st, H. R. Kinney, $3; 2d, A. E. Hartshorn, $2; 3d, W. H. Teele, $1.
Three Savoy, trimmed:
1st, A. E. Hartshorn, $3; 2d, E. L. Lewis, $2.

CAULIFLOWERS.—Four specimens:
1st, W. H. Teele, $4; 2d, DeSouza Bros., $3; 3d, E. R. Teele, $2.

CELERY.—Best kept during the exhibition, four roots of Paris Golden:
1st, A. Nixon, $5; 2d, Taunton Asylum, $3; 3d, W. J. Clemson, $2.
Any other variety:
1st, Taunton Asylum, White Plume, $5; 2d, Joseph Thorpe, $3; 3d, A. Nixon, $2.

ENDIVE.—Four specimens:
1st, W. J. Clemson, $3; 2d, A. Nixon, $2; 3d, A. E. Hartshorn, $1.

LETTUCE.—Four heads:
1st, Taunton Asylum, $3; 2d, Joseph Thorpe, $2; 3d, A. Nixon, $1

PARSLEY.—Two quarts:
1st, Ed. Parker, $2; 2d, Taunton Asylum, $1.
CORN.—Sweet, twelve ears:
1st, E. L. Lewis, $3; 2d, E. L. Lewis, $2; 3d, Geo. F. Wheeler, $1.
EGG PLANTS.—Four Round Purple:
1st, H. R. Kinney, $3; 2d, E. L. Lewis, $2; 3d, Taunton Asylum, $1.
TOMATOES.—Twelve Aristocrat:
1st, Taunton Asylum, $3; 2d, Geo. F. Wheeler, $2; 3d, Aaron Low, $1.
Twelve Stone:
1st, Taunton Asylum, $3; 2d, E. L. Lewis, $2; 3d, Joseph Thorpe, $1.
Twelve of any other variety:
1st, Aaron Low, $3; 2d, J. Reade, $2; 3d, Joseph Thorpe, $1.
PEPPERS.—Twelve specimens of Squash:
1st, E. L. Lewis, $3; 2d, M. Sullivan, $2; 3d, Geo. W. Jameson, $1.
Any other variety:
1st, E. L. Lewis, $3; 2d, Taunton Asylum, $2; 3d, E. L. Lewis, $1.
CULINARY HERBS, GREEN.—Collection, named:
1st, A. Nixon, $3; 2d, Taunton Asylum, $2.
Collection of vegetables, not less than ten varieties:
1st, E. L. Lewis, $10; 2d, W. Heustis & Son, $8.

*Gratuities:—*

Mrs. E. M. Gill, Collection, $2.
Aaron Low, Collection, $2.
Ed. Parker, Collection, $2.
W. W. Rawson, Collection, $1.

## CHRYSANTHEMUM EXHIBITION.

NOVEMBER 3, 4, 5, 6.

*Special Prizes.*

CELERY.—Eight roots, commercial grown:
1st, W. Heustis & Son, the Lowell Silver Medal; 2d, E. L. Lewis, the Lowell Bronze Medal.

*Regular Prizes.*

PARSNIPS.—Twelve specimens of Long Smooth:
1st, W. J. Clemson, $3; 2d, E. L. Lewis, $2; 3d, Geo. D. Moore, $1.
Twelve specimens of Hollow Crown:
1st, W. H. Teele, $3; 2d, W. J. Clemson, $2; 3d, E. L. Lewis, $1.
SALSIFY.—Twelve specimens:
1st, W. J. Clemson, $3; 2d, Ed. Parker, $2; 3d, A. E. Hartshorn, $1.

CUCUMBERS.—Pair:

1st, Frank Pierce, $3; 2d, W. W. Rawson, $2.

CABBAGES.—Three Red, trimmed:

1st, E. L. Lewis, $3; 2d, E. L. Lewis, $2; 3d, A. E. Hartshorn, $1.

Three Savoy, trimmed:

1st, E. L. Lewis, $3; 2d, Mrs. J. L. Gardner, $2; 3d, A. E. Hartshorn, $1.

BRUSSELS SPROUTS —Half peck:

1st, Mrs. J. L. Gardner, $3; 2d, A. E. Hartshorn, $2; 3d, Ed. Parker, $1.

CAULIFLOWERS.—Four specimens:

1st, W. H. Teele, $3; 2d, Estate of C. M. Handley, $2; 3d, E. R. Teele, $1.

CELERY.—Four roots of Pascal:

1st, Ed. Parker, $3; 2d, W. W. Rawson, $2; 3d, Geo. D. Moore, $1.

Any other variety:

1st, Ed. Parker, $3; 2d, W. Heustis & Son, $2; 3d, E. L. Lewis, $1.

ENDIVE.—Four specimens:

1st, A. E. Hartshorn, $3; 2d, Taunton Asylum, $2; 3d, Ed. Parker, $1.

LETTUCE.—Four heads:

1st, W. W. Rawson, $3; 2d, J. C. Stone, $2; 3d, Geo. D. Moore, $1.

CORN —Yellow or Field, twenty-five ears, traced:

1st, Abel F. Stevens, $3; 2d, Ed. Parker, $2; 3d, E. M. Bruce, $1.

TOMATOES.—Twelve specimens, grown under glass:

1st, A. Nixon, $3; 2d, Eben D. Jordan, $2; 3d, A. E. Hartshorn, $1.

Collection of vegetables, not less than four varieties:

1st, E. L. Lewis, $8; 2d, A. E. Hartshorn, $5.

*Gratuities:—*

J. B. Shurtleff, Jr., Hubbard Squash, $1.

Mrs. J. L. Gardner, Brussels Sprouts, a Silver Medal.

MICHAEL SULLIVAN,
AARON LOW,
J. C. STONE,
WALTER RUSSELL,
W. H. HEUSTIS.

*Committee on Vegetables.*

# REPORT OF THE COMMITTEE ON GARDENS FOR THE YEAR 1904.

BY CHARLES W. PARKER, CHAIRMAN.

From the beginning of the Society's history the encouragement of ornamental gardening has been a marked feature of its work, and the advance made in this line of horticultural progress, and the general improvement manifest in suburban and rural places during this period attest the value of this department of the Society's endeavors.

In recent years, however, there has been an increased development of another branch of the subject, that of gardens under glass, or greenhouses, the importance of which is illustrated in the present report, where, out of ten invitations to the committee, seven have been for the inspection of greenhouses devoted to flower or vegetable culture, and two only for the general visitation of estates. Possibly, this result may be owing to the arrangement of the schedule, but it is certain that the culture of flowers, fruits, and vegetables under glass, especially for commercial purposes, is making rapid growth in this and other states.

Early in the year the committee issued a special circular setting forth the objects for which it was established and calling attention to the prizes offered for the current season.

An account of the visits made and a list of the awards given are herewith submitted.

## Walter Hunnewell's Estate, Wellesley.

The first visit of the committee was made on June 7 to the Hunnewell Estate at Wellesley. Although the special object in view was the inspection of the rhododendron plantations, then in the perfection of their magnificent bloom, the various other gardens of flowering plants were noted with interest. The noble trees on

the estate, together with the great stretches of lawn, formed a landscape of unusual beauty, and the Italian garden on the lake border added to the picturesqueness of the place. The numerous greenhouses with their great variety of tropical foliage plants, palms, orchids, ferns, and fruits were also inspected.

Frequently described in these reports in past years, this grand estate loses none of its interest as the years go by, and its fine condition reflects credit upon the head gardener, T. D. Hatfield.

### Mrs. John L. Gardner's Estate, Brookline.

The next visit was made on June 13 to the Estate of Mrs. John L. Gardner of Brookline which is entered for the Hunnewell Triennial Premium "for an estate of not less than three acres which shall be laid out with the most taste, planted most judiciously, and kept in the best order for three consecutive years." The grounds of this estate, which comprise an area of about thirty acres, are disposed in broad lawns, bordered by fine old trees and thickets of shrubbery among which rhododendrons abound, open gardens of flowers, greenhouses for palms, orchids, fruits, and tropical plants, an Italian garden, and the stately, old-fashioned mansion house. Situated upon high land, a fine outlook over the surrounding country to the sea is offered at several points.

The estate combines in one harmonious whole, illustrations of the various types of landscape gardening; the formal and the natural are here represented but neither infringes upon the other.

The visitors were greatly interested and pleased with the appearance of the place as, under the guidance of the head gardener, William Thatcher, they rambled leisurely over the grounds. The estate was favorably reported upon for the first of the three years' test required.

### N. B. White's Vineyard, Norwood.

On June 27 the committee visited the vineyard of N. B. White at Norwood to inspect his vines then in flower and young fruit. For thirty years, Mr. White has been engaged in experimental work in the hybridization of the grape, and has succeeded in producing several new varieties that have become of commercial

value. Of these special mention may be made of the Amber Queen, a variety similar to the Delaware, the Bay State, and the International. Some of his more recent productions are the Numbers 6 and 9, and the King Philip, the latter especially promising.

The King Philip is now six years from the seed and has fruited for the last three years. It is a combination of *labrusca*, *riparia*, and *vinifera*, and the fruit closely resembles the Black Hamburg but with a more sprightly flavor. A peculiar feature of its composition is that the fruit most resembles the *vinifera* (or foreign grape), while the vine most resembles the native species, *labrusca* and *riparia*. It is perfectly hardy and the fruit is said to be a good keeper. The berries as a rule have but one seed which is a desirable quality. The King Philip grape has a future before it if no weakness or other defects manifest themselves during its further development.

### W. G. Winsor's Dahlia Garden, Brockton.

September 22 the committee visited the dahlia garden of W. G. Winsor at Brockton. In this section of Plymouth County are to be found numerous growers of this popular flower, and the extent to which its cultivation is carried is truly surprising, fields of several acres, in many instances, being devoted to it. In fact, it has developed into a notable industry in this section. A visit to such a field of dahlias, arrayed in its brilliant coloring, on a sunny September day, is a delightful experience. Mr. Winsor's garden, though not of as large area as some others — covering a little less than an acre — is noteworthy because of the quality of the plants grown and the distinctiveness of the varieties. Quality and not quantity is the object sought for. His collection of ninety varieties of the Cactus class contains some of the latest English and French productions, and is a display of wonderful beauty. In this class the visiting committee noted with especial interest the G. H. Jackson, a rich garnet; the Sir D. Gustave Douson, a light scarlet, and sometimes thirty inches in circumference; the Victor Vassier, a sulphur yellow; the Madame Keller, a variegated pink; the Mrs. De Luca, a handsome yellow; the J.

Weir Fife, ruby colored; the Imperator, garnet; and the Pretoria, pale red.

One of the novelties of the season in this class was the W. F. Balding, a new English variety, amber colored on the margins, abruptly changing to yellow in the center.

The Cactus varieties of the dahlia are undoubtedly the most popular of all, and it is doubtless due to the development of these forms that the dahlia owes its present popularity.

Other classes, however, are not neglected in Mr. Winsor's garden. The Decorative contains many beautiful examples, notably the Favorite, white tinged with lavender, one of his own seedlings; the Lady White; the Calypso, a handsome yellow; and the Minos, a deep maroon, and one of the most desirable.

In the Show class, admiring attention was directed to the Thomas Pendered, one of the best yellows, very large and heavy; and the Robert Bromfield, a profuse bloomer.

In the Collerette class, a rather gaudy novelty was the Vice President Viger; but the varieties in this class are not considered especially desirable, and are going out of general cultivation.

Mr. Winsor has originated thirty seedlings of his own, and has in all under cultivation over three hundred distinct varieties. The present season has been somewhat unfavorable for dahlia growing, the tubers having been injured in some way during the past winter, so that the production of flowers has been less than usual.

## Morton F. Plant's Estate, Groton, Conn.

October 28 the committee visited the Morton F. Plant Estate at Groton, Connecticut, for the purpose of inspecting houses of chrysanthemums, carnations, and roses which had been entered in competition for the awards of the Society by the superintendent and head gardener, Thomas W. Head.

This estate comprises about forty acres situated at the mouth of the Thames River and commands a fine outlook over land and sea. A magnificent stone mansion of Elizabethan architecture, built of the native granite of the ledge beneath it, rises as a prominent feature of the estate. The superintendent's lodge, the

stable, barn, and gateways are all of stone and architecturally in harmony with the great mansion itself. The grounds are in process of development and will be laid out to include all the various features of the landscape gardener's art now considered necessary accompaniments for such an estate. Many shrubs and trees have been planted already and large areas prepared for lawns. When all has been completed it will take rank among the notable estates of the country.

The committee found here a large area of glass of the most approved, modern construction, and everything in the best order and condition. The quantity and luxuriance of bloom and foliage was notable, especially when it is considered that everything was planted out in the houses only the preceding spring.

In the rose house were about six hundred plants, comprising numerous varieties, about one-half being grafted, the other half grown on own roots. Among those in flower were noted especially the Bride, Golden Gate, and Ivory, of the white-flowered kinds; the Bridesmaid in delicate rose; the Perle de Jardin, yellow; and the new Gen. MacArthur, bright red and very fragrant.

The carnation house contained a large number of the best varieties, including Enchantress, Mrs. Patten, Nelson Fisher, Roosevelt, Bride, Lawson, Maceo, Lillian Pond, Mrs. Bradt, and the yellow Golden Beauty.

In the house of chrysanthemums grown on benches were fifty-two varieties grown to single blooms, forming a collection of great interest both to the specialist and to the ordinary observer. The house of chrysanthemums grown in pots and arranged for general effect with other plants presented a beautifully blended array of colors. There were two hundred pots in this house.

There was also a very attractive house of foliage plants.

### Edward A. Clark's Estate, Jamaica Plain.

October 31 the estate of Edward A. Clark at Jamaica Plain was visited. The special object of the visit was to inspect a house of chrysanthemums grown on benches, and houses of carnations and roses.

In the chrysanthemum house were about four hundred plants grown to a single flower comprising about fifty varieties of the

best sorts. This house was thirty by twenty-five feet and presented a very attractive appearance.

The rose house was thirty-five by nineteen feet and contained many of the best varieties, mostly grafted stock, and planted the last week in June.

The carnation house contained about five hundred plants of the leading kinds, making a very fine display.

The gardener of this estate is William A. Riggs, under whose skilful management such results are made possible.

### Mrs. C. C. Converse and Mrs. Lester Leland Estate, Malden.

November 1 the committee was invited to visit the estate of Mrs. C. C. Converse and Mrs. Lester Leland at Malden to inspect houses of palms and foliage plants, and houses of chrysanthemums grown on benches and in pots. The house of chrysanthemums in pots presented a most brilliant appearance and was a remarkable collection of notable varieties, magnificently grown. One plant, the Garza, of the Anemone class, by actual count bore 874 flowers. This house was one hundred and twenty by twenty feet and contained 23 plants trained in ten-inch pots.

The house grown to specimen blooms had 165 varieties and contained a most pleasing assortment. These were planted in May. The palm house contained fifteen species of palms, besides a large and beautiful assortment of ferns, crotons, dracænas, pandanus, and orchids in splendid condition.

The head gardener of the estate, David F. Roy, has shown a high order of horticultural knowledge and ability in producing such results as are shown in these houses.

### Field Meeting at Arlington.

On the afternoon of November 5, under the auspices of the committee, a public demonstration or field meeting was held at Arlington.

The object of the gathering was to call public attention to the necessity of adopting measures to check the devastation being wrought upon vegetation by the gypsy and brown-tail moths and the San José scale. Numerous appliances were exhibited suitable for this purpose, including large steam machines for use by

CHRYSANTHEMUM HOUSE OF H. H. ROGERS FAIRHAVEN MASS.

towns and public parks, as well as various smaller apparatus for private estates. The attendance at the meeting was large and was constituted almost wholly of persons, both men and women, who were personally interested in the work of protecting our forest and shade trees from what is a dangerous menace.

Tree wardens from many towns in Massachusetts were present to obtain information as to the best methods of combating these pests. Prof. A. H. Kirkland gave descriptions of the insects and explained the working of the various appliances.

This meeting will doubtless have a beneficial effect and was certainly a success in accomplishing the objects for which it was held. To Prof. Kirkland is due much praise for the skilful and effective manner in which the matter was handled, as well as for his very pleasing and instructive remarks and explanations.

Mr. John A. Pettigrew, Superintendent of the Boston Park Department was present, and assisted very materially by the exhibition of the large power sprayer used by the City of Boston.

To Messrs. H. L. Frost of Arlington and A. M. Cobb of Malden are due the thanks of the committee for services rendered; and their interest in the occasion as shown by the exhibition of apparatus for spraying and explanation of methods of working them is much appreciated.

### H. H. Rogers' Estate, Fairhaven.

November 8 the committee was invited to visit the H. H. Rogers' estate at Fairhaven to inspect the house of chrysanthemums grown in pots and entered for competition by the head gardener, James Garthley. Of the estate itself, it is only necessary to mention here that it received in 1903 the Hunnewell prize of the Society for the best estate in New England "laid out with the most taste, planted most judiciously, and kept in the best order for three consecutive years." It certainly has not deteriorated since that award was made.

The special interest of the visiting committee on this occasion centered in the greenhouses and their contents, then luxuriant in tropical foliage plants and brilliant with the display of chrysanthemums. There were two houses devoted to palms, ferns, and orchids, and two to chrysanthemums and other flowering plants.

The principal house is seventy-seven feet long by twenty feet wide. It contains about five hundred plants grown in six and seven-inch pots and comprises about forty of the choicest varieties known to horticulturists. They have the merit of being grown to a reasonable height, allowing the observer to look down upon them, and the effect is very fine. The arrangement of the plants in a bedding of ferns and trailing vines was artistic and attractive.

Of especial interest to the committee were the varieties General A. Maceo, a finely grown plant of a rich garnet color; the William H. Lincoln, a handsome yellow and very floriferous; and the Golden Wedding, a plant with twenty flowers, grown in a seven-inch pot.

Mr. Garthley has originated a new variety in the Anemone class which he has named the Victoria. It is a hybrid between the daisy and the Garza and is a valuable acquisition.

### Joseph H. White's Estate, Brookline.

November 10 the committee visted the Joseph H. White place at Brookline which was entered for the prizes of the Society for a house of roses and a house of palms and foliage plants. The estate covers an area of eighteen acres, situated on a hillside sloping towards the south, and commands grand views of the surrounding country even to the sea. A luxuriant growth of English ivy on the stone walls and on the house, and the noble American elms on the extensive lawns attracted the interested attention of the committee.

In the palm house, in addition to the numerous varieties of palms, were many species of ferns, orchids, and other exotics. An unusually fine specimen of the ceriman (*Monstera deliciosa*) was noted, its large perforated leaves and otherwise grotesque aspect rendering it a curious illustration of the vagaries of vegetable growth, and brought to mind a conception of what a tropical jungle might be. It is a climbing plant and produces an edible fruit, somewhat resembling a banana but with a pineapple flavor. This house was lofty in dimensions and very well kept and the plants were in fine condition.

The rose house was forty-two feet by fourteen feet, with curvilinear roof, and was well filled with two-year old plants, all

grafted stock, mostly of the Bride, Bridesmaid, Wootton, and Liberty varieties.

The committee was much pleased with the fine condition of the greenhouses, the healthy appearance of the plants, and the evidence of superior cultivation on the part of James Wheeler, the superintendent and head gardener of the estate.

### Mrs. John L. Gardner's Estate, Brookline.

November 17 the committee again visited the Mrs. John L. Gardner estate at Brookline; this time to view a house of palms and foliage plants which had been entered by William Thatcher, the head gardener of the estate. The palms were not large, nor of many varieties, but the great number of beautiful foliage plants rendered the place a most attractive one to visit. The plants were in fine condition and showed intelligent care and experience on the part of the gardener.

Among the plants conspicuously noted were the *Bertolonia Van Houttei*, *Ficus repens*, growing on a wall and with it the shingle plant (*Photos*), its large flat leaves adhering in a manner well suggestive of its popular name. There was also a fine plant in flower of *Cobea scandens*. *Solandra laevis*, still in flower, was notable, as well as a luxuriant specimen of *Acanthus mollis* in shining green foliage. A specimen of *Gloriosa superba* (the climbing lily) just past flowering attracted attention.

### H. A. Stevens Co.'s Mushroom Cellar, Islington.

December 9 the committee visited the mushroom cellar of H. A. Stevens Company at Islington. It occupies the entire space of a barn cellar about forty by sixty feet, with close laid stone and brick walls. In this space the mushrooms of the ordinary market variety were growing in the greatest profusion, many of them being of more than ordinary market dimensions. Mr. Stevens took out of these beds, in the week previous to the committee's visit, seventy-five pounds, and his daily product is from eight to ten pounds for which there is always a ready market.

The committee inspected also, with much pleasure, the fine greenhouses devoted exclusively to the culture of the carnation;

in all eight thousand plants of the most prominent commercial varieties. By request of the committee, Mr. Stevens has prepared a description of his method of raising mushrooms which is herewith published.

THE CULTIVATION OF MUSHROOMS IN A BARN CELLAR WITH STEAM HEAT.

BY H. A. STEVENS.

First, take horse droppings fresh from the stable and let it heat up in a pile for two or three days; then turn it over and let it stand for two days more; then turn again, adding one part good loam to three parts manure, letting it heat up again; then, if not too hot, put it in the bed about eight or ten inches thick, and tramp it down well. In two or three days plant the spawn, making a small hole not more than one and one-half inches deep in the manure with a trowel; then tramp down again and add a layer of good loam about one inch deep all over the bed. In planting the spawn, place small pieces six or eight inches apart in the bed, and when all is finished, take a board, lay it on the top of the bed and tramp it level; then watch that the bed does not get dry on the surface. If it shows signs of drying sprinkle with water that has been kept standing in the cellar, being careful not to get the bed too wet. Keep the temperature of the cellar at 53 degrees, not lower than 45 nor above 55 degrees.

The pure culture spawn made in Chicago is used.

The Prizes and Gratuities awarded this year are as follows:

*Special Prizes from the John A. Lowell Fund.*

For the best houses of Chrysanthemums arranged for effect with other plants in pots:

| | |
|---|---|
| First, Mrs. C. C. Converse and Mrs. Lester Leland | $40 00 |
| Second, H. H. Rogers | 20 00 |

For the best houses of Chrysanthemums grown on benches:

| | |
|---|---|
| First, Morton F. Plant | 40 00 |
| Second, Mrs. C. C. Converse and Mrs. Lester Leland | 20 00 |

*Society's Prizes.*

For the best house, not commercial, of Palms and Foliage Plants:

| | |
|---|---|
| First, Joseph H. White | 30 00 |
| Second, Mrs. John L. Gardner | 20 00 |

For the best house, not commercial, of Carnations:

| | |
|---|---|
| First, Morton F. Plant | 30 00 |
| Second, Edward A. Clark | 20 00 |

For the best house, not commercial, of Roses:

| | |
|---|---|
| First, Morton F. Plant | 30 00 |
| Second, Joseph H. White | 20 00 |

*Gratuities.*

| | |
|---|---|
| W. G. Winsor, for Dahlia Garden | 10 00 |
| N. B. White, for his efforts in hybridizing and improving the Grape | 10 00 |
| T. D. Hatfield for superior care in maintaining the standard of the Hunnewell Estate | 10 00 |
| H. A. Stevens Company, for cultivation of Mushrooms | 10 00 |

Charles W. Parker, for Estate at Marblehead Neck, Honorable Mention.

Respectfully submitted,

CHARLES W. PARKER,
DAVID F. ROY,
JOHN A. PETTIGREW,
W. W. RAWSON,
ARTHUR H. FEWKES,
OAKES AMES,
PATRICK NORTON,
HENRY P. WALCOTT.

*Committee on Gardens.*

SCHOOL GARDENS AT FAIRHAVEN MASS.

# REPORT OF THE COMMITTEE ON SCHOOL GARDENS AND NATIVE PLANTS FOR THE YEAR 1904.

BY HENRY SAXTON ADAMS, CHAIRMAN.

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In many ways the past year has been a successful one. We have begun to recognize and encourage the home-garden movement; we have had a successful exhibition of children's herbariums; and we have had abundant competition at all the exhibitions of native plants and ferns, in this respect a marked improvement over the previous year.

Early in the year the committee sustained a great loss in the resignation of Mr. Henry Lincoln Clapp who had served for fourteen successful years as chairman. He has been closely identified with school-garden work and has left us many interesting reports showing the progress that has been made. His last report shows how much has been done during the past fourteen years and we all regret that he is not able to remain on our committee.

Although the work of judging the native-plant exhibits was successfully carried on, as well as the correspondence of the committee, it was not until July that we were able to meet and elect a new chairman. This was unfortunate as it delayed printing the special circular of prizes offered through our committee. The work was taken up very reluctantly by your present chairman, feeling as he did how difficult it is to successfully carry on such important work. It is through the work of this committee that the young are helped to study plants, and we hope that a large majority of our children may be encouraged until we have a love of flowers so thoroughly instilled into their nature that they can never be happy away from them. We must start the children right, encouraging them in every possible way. Many of us realize what a benefit it would have been to us to have had this sort of help years ago, and how many pleasant hours in the garden we have lost because we did not begin early enough and with the right spirit.

Our late secretary, Mr. Robert Manning, once said to me that the Massachusetts Horticultural Society is a society whose members are either middle-aged or elderly. Think a moment and you will see how true this is. Let us start with the children and teach them to love horticultural pursuits while young in order that their years may be lengthened, for outdoor work surely helps to do so; and that perchance some may join our Society earlier than is the rule today.

A number of new problems have been taken up by the committee this year. It seems best to hastily report on the work of the year and then to consider the proposed changes for 1905. Our new prize list has been printed and contains some important changes. Let me call attention to the fact that the Native Plant Committee was this year joined with the Committee on School Gardens and Children's Herbariums under the present name. Our work divides itself into four distinct parts so that each will be reported on under its particular heading. At the end of these reports will be found a list of prizes and gratuities awarded during 1904, amounting to $225, the amount appropriated for our use.

## School Gardens.

There were three entries of school gardens for prizes this year, although but two reports were received in time to compete. It was unfortunate that the third report was delayed as we would have been very glad to have awarded this garden a prize which it certainly deserved.

The work in the school gardens has been very satisfactory and shows marked advance. We feel, however, that we should have more gardens entered and we wish particularly to encourage all new gardens. School-garden work has advanced sufficiently to prove its value and we should see gardens started in all the cities and towns in the state We want to help in every possible way and hope another year to see enough new gardens started so that we shall feel forced to increase our prize list. We want to offer, at some future time, special prizes to all established gardens as a class, and to new gardens as a separate class. Until that time comes we feel that we must not allow one garden to take too many prizes and have included a special rule in our prize list to this effect.

Another important change in our rules for gardens was made this year and will be continued: it is the removal of the requirement that only native and economic plants could be grown in the gardens. The rule now allows both native and cultivated plants. Especial attention, however, should be called to the value of native trees and shrubs, as well as cultivated, for backgrounds for the plant borders. An ideal garden would have this kind of a setting with herbaceous plants, wild flowers, ferns, and annuals in front. Some part, as the center, of the garden would be laid out in beds in which the children can grow bulbs, annuals, and vegetables, each having a bed of his own.

At the next exhibition of children's herbariums we hope to exhibit pictures with drawings and papers written by the children in connection with their garden work.

The new prize list shows one important change: that is the reduction for this year of the amounts for the school-garden prizes. We hope another year to have a more generous appropriation so that we can devote more money to this work.

The first prize for 1904 was awarded to the Fairhaven School Gardens. These gardens were visited by the chairman in July and found to be in excellent condition in every way. The rows of plants were straight, there were plenty of flowers, good evidence of crops, and the weeds, although it was summer vacation, were well kept down by the children themselves, not by hired help.

The committee intends to visit, wherever possible, all gardens in the future which are entered for prizes. We have never made a special effort to do this but feel that it is only by actually seeing the gardens that we can make the best awards and keep closely in touch with the work.

The report of the Fairhaven School Gardens follows; after that that of the Groton Childen's Gardens which were considered as one garden by the committee and received second prize. The Cobbet School Garden report is also given in part, although no prize was awarded. It has made marked advancement this year and we think the report will prove of value.

## Report of the Fairhaven School Gardens.

BY FRANK M. MARSH, SUPERINTENDENT OF SCHOOLS.

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Encouraged by the successful results obtained the first year in the school gardens of Fairhaven, Massachusetts, the committee in charge of this department felt justified in continuing the movement which was first established here in the spring of 1903.

To speak briefly a description of the gardens of the past season (1904) is as follows. In the plot of ground containing about one-third of an acre there was room for 48 individual beds, 4 feet in width by 15 feet in length. As a background against a high fence which marked the limits of territory on the south side of the garden, the children planted corn and sunflowers, while in front of these taller plants, blue larkspur outlined the outer edge. To the east a border 4 feet wide contained a row of golden coreopsis, with pink and white candytuft on either side. On the north side there were four large beds, 15 feet by 20, devoted to the cultivation of vegetables, such as tomatoes, spinach and others. The west side was given up to the raising of the grains and grasses, such as barley, oats, rye, millet, timothy, hungarian, etc., while some space was allowed here for beds of squashes, pumpkins, and cucumbers.

The paths about the large beds were bordered with parsley and ageratum, while climbing nasturtiums concealed from view the rough edges of the east and west boundaries.

The walks running north and south were 3 feet wide, those east and west measured 2 feet in width.

In the individual beds, on one side, were planted such vegetables as radishes, corn, lettuce, beets, spinach, turnips, and beans, while the other half showed a display of flowers, as nasturtiums (dwarf), candytuft, marigolds, phlox, mignonette, balsams, and ageratum.

The method of planting these individual beds was interesting. A rope was stretched taut from the north to the south side of the plot, then, each child standing beside his own bed — with one foot on the rope to keep it straight — at a signal from the person in charge, made his furrow ready for the seed. Planting followed the distribution of the seeds, then covering and levelling of the soil: the rope was moved further on, 12 or 15 inches as space required, more furrows made, and thus the planting continued until all the beds were sown.

As there were high and low grades in the lot, considerable time was spent this spring, by the young gardeners, in grading some of the beds, so that now they are practically level. Last year the boys made a compost pile from the sods which they removed, and this year that soil was used in grading where it was necessary.

SCHOOL GARDENS AT FAIRHAVEN, MASS.

An addition to the gardens this season has been the introduction of several varieties of our most common ferns. The southwest corner was set aside for the wild garden and the boys have gone forth enthusiastically, after school and on their Saturday holiday, to the woods and roadsides in search of these underground rootstocks. They have already become familiar with the royal fern, the cinnamon, interrupted, brake, shield, sensitive, polypody, spinulose, and New York ferns, and it is hoped that another year they may extend their acquaintance and gain a wider knowledge of the life-history and interesting habits of these shade-loving plants.

The work on the gardens was assumed by pupils from the sixth, seventh, and eighth grades and was purely voluntary, being carried on outside of school hours. So enthusiastic have the little nature students been that they have devoted hours at noon, after school at night, and on Saturday mornings in their ambition to cultivate their miniature farms and to conquer the troublesome weeds.

Not alone have these young people enjoyed the fragrance and beauty of the flowers that have bloomed for them, but their friends and many others also have shared their pleasure. While some have been content to furnish the home table with fresh vegetables, other boys and girls have reaped pennies from the sale of their beans, radishes, lettuce, etc., counting perhaps a dollar or more at the close of the season as the result of their trading.

What lessons have been learned from this devotion to the soil? The young agriculturists have been taught the use of the hoe, rake, and spade; they now understand the preparation of the soil for the reception of the seed, the best method of planting, and the care that is necessary for the growth of the young plants; they have learned the value of "thinning out," of transplanting, of loosening and softening the soil about the roots of their young seedlings, and have solved many other scientific problems of like nature.

Perhaps the best results have been the awakening to the appreciation of the beautiful things in nature, a respect for the property of others, and the self-reliance that springs from the ability to produce from the soil something that can be called one's own.

The boys and girls have written some attractive articles in the classroom in which they have related their experiences in the school gardens as well as their efforts in raising flowers and vegetables at home.

Another year the committee hope to introduce some of the native shrubs such as privet, shadbush, mountain sumach, and others, and to bring to the school gardens some of our attractive wild plants, for a cultivation of the latter means a less wanton destruction of some of earth's fairest flowers.

## Report of the Director of the Children's Gardens, Groton, Mass.

BY MISS ELIZABETH SEWALL HILL.

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The Groton Children's Gardens are flourishing and have had a most successful and satisfactory year. In 1902 we had one garden with ten boys, in 1903, two large gardens with forty boys and girls, and this year, three large gardens with spaces for sixty young gardeners, the Mill District garden being a new one.

During the winter we had a camera club in place of the garden club for I do not intend to talk gardening all the year round. I think the eight months we work in the garden are enough, but a week seldom passed in which some child did not discuss garden methods, plans, or improvements.

The first of March I gave packages of tomato seeds to the children and many plants were started, 250 being afterward transplanted to the gardens. From March 1 until we began the children were clamoring for gardens. "When will gardening begin?" was asked continually.

### THE GROTON GARDENS ON LAWRENCE PLAYGROUND.

June 18 we began planting. The land was so wet it could not be made ready until that date. We went to work with a will and in four days planted everything in every garden but one which was saved for a boy who was not able to come at that time. It was a handsome garden; the cucurbits and sunflowers looked especially good. We mixed most of the fertilizer ourselves and I never saw vegetables grow so fast. Summer squashes and beans were edible in six weeks; turnips were two inches through in the same time; and radishes matured in fourteen days. A dealer in fertilizers sent us three bags of the pure material, one of nitrogen, one of potash, and one of phosphorus. In one part of the garden those who wished had an experiment station as we wanted to find out what sort of food was needed by the soil. In one space nitrogen was used alone, in another, potash, in a third, phosphorus, in a fourth, nitrogen and potash, in a fifth, nitrogen, potash, and phosphorus, in a sixth, nitrogen and phosphorus, and in a seventh, phosphorus and potash. We raised good things in this experimental garden, but the best was with the three together, equal parts of phosphorus and potash with a little less nitrogen. Not much nitrogen was needed as a general thing.

Those who wished kept notebooks with record of attendance, time of planting, of coming up, quantity raised, and anything learned in the garden; especially reports of the daily five-minute lecture I gave them on such topics as injurious insects, fertilizers, soils, etc. The gardens were

THE GROTON GARDENS ON LAWRENCE PLAYGROUND.

kept in fine order, paths weeded, and the vegetables properly thinned; and there were good attendance, good behavior, and general interest.

We have studied insects, birds, and plant life and made herbariums of flowers, ferns, mosses, and lichens. Some of the boys have aquariums for the purpose of studying the water insects, others take the darning needles, and still others, the life histories of butterflies. There is a spirit of helpfulness in the garden, helping each other pull weeds, plant, clear paths, etc. Other small children come in and are eager to help. It was very hard to decide who should have the prizes. The three judges came in at any time, looked over the gardens, and marked them very strictly. The ages of the children ranged from eight to seventeen years. Harold Woods was awarded first prize, nine others came in second, and five were awarded third prize. Those awarded first and second prizes received money; the others, photographs.

### THE WEST GROTON GARDENS.

The West Groton Gardens have also done well. There were thirteen workers each having a garden 35 by 12 feet. We changed the location this year as the other was too wet to plow, and we also needed more room. All planted the same kinds of vegetables. The children had to work hard to keep out the weeds as it was new ground, but with patience and perseverance they conquered and had good gardens. The sunflowers were so tall we used them for shelter from sun and storm.

One seven-year-old boy was most devoted to his garden; every day he was in it digging and weeding or admiring it. When away on a short vacation he worried, fearing weeds would grow or something would happen to his garden. When one child was absent the others kept his weeds out.

The largest squash in all the gardens was raised here, thirty pounds; also a large pumpkin weighing twenty-six pounds. Beans, corn, and carrots did extra well, and a few peanuts were grown and matured. The dry weather affected the soil very much but as it was kept well dug the vegetables suffered very little, although newly planted seed could not germinate, making our second crop late.

One boy said "I am not working for a prize but because I like a garden." Lectures and talks were given and notebooks kept records of insects, birds, and plant life.

Among other things of interest noted was a humming bird's nest found by two of the larger boys. It was on a maple tree over the swimming hole; a most dangerous place, at least it seemed so to us. I never saw anything more touching than for this little bird to fearlessly build its nest and rear its young within a few feet of a boys' swimming place. I am glad to say that the confidence was not misplaced. We watched it from the time the nest was builded until the little ones flew away.

This garden was on private property and the owner said it made her happy to see and hear the children so much enjoying their gardens. These

gardeners were younger on the average than those of the other gardens, their ages being from six to thirteen years.

### THE MILL GARDEN.

The Mill Garden was 160 x 42 feet and was on private property. The children were present every day unless unavoidably detained, which seldom occurred. We had a patch through the center of the garden with 150 feet of sweet alyssum on one side and nasturtiums on the other, giving it a beautiful appearance. The cabbages, beets, lettuce, cauliflower, and cucurbits made a pretty color scheme with the 150 feet of flowers in the foreground and corn and sunflowers in the background. We had many visitors; sometimes I would be giving a talk on insects, birds, or other subjects to an audience of forty people, ranging from two to fifty years of age. They were much interested and were proud of this garden. Fifteen children between the ages of seven and seventeen years had large gardens and there were six small ones for children four to seven years of age.

One day a cow got in and ate almost everything in two gardens and injured several others. One boy was just about discouraged and thought he would give up his garden, but after a few minutes' thought went to work and repaired the damage as best he could, replanting where needed, and came out of it as well as the others.

These three Groton gardens were all different and have been very satisfactory. The members of each visit the others and say their own is the best. The Groton Farmers' and Mechanics' Club offered prizes, as usual, for the best and largest varieties of vegetables exhibited at the Town Fair, and there was a good exhibition. Gladys Mason received the first prize, Harold Woods, the second, and Belle Munroe, the third.

A few seeds were bought, but most were given by individuals and by the Department of Agriculture at Washington. The fertilizer was given by a fertilizer company and by individuals; also the prize money was solicited from the town's people interested in the work. The tools and the salary of the director were paid for by the Village Improvement Society. There were three judges for each garden who came in at any time, making it interesting for the children who enjoyed showing their gardens, and talking over improvements, etc., with the judges. The children have worked faithfully and good results have followed.

THE MILL GARDEN GROTON MASS.

## Report of the Cobbet School Garden, Lynn, Mass.

(In part.) November 12, 1904.

BY PHILIP EMERSON, PRINCIPAL.

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Encouraged by your approval of our work in 1903, the gardens of the Cobbet Grammar School were reëntered in competition this spring, and our formal report follows. Our accomplishments still fall so far short of our ideals that they seem to us of no great merit; yet we have made such marked advancement as compared with the results which last year gained the second prize that we hope to be granted some award this season. We have probably continued the development of our plans as vigorously as was consistent with the proper balance of all lines of school work, for we have been mindful of the desirability of making the garden work aid, not replace, the ordinary school pursuits.

The central feature of the year's work has been the model vegetable garden in the school yard. As soon as the ground thawed in March, the boys staked out thirteen beds on the gravel and ashes south of the school, in spots which were shaded the least, their combined area amounting to some 1,500 square feet. The work of digging out and removing the gravel, then of filling the excavations with soil and manure, took some time because interrupted by snow and rain. The loan of a dozen shovels from the Highway Department, by direction of His Honor, Mayor Eastham, enabled a considerable force of boys to work at recess and after school, however, and all beds would have been ready by early May had not some been obliged to await the coming of the school carpenter to repair the adjoining board fence.

The planting schemes for the several garden beds were sketched on large cards, with accompanying descriptions. Each bed was in the immediate charge of two boys and two girls, under the direction of the principal, but others were often eager to share the work of planting or hoeing. It was planned to grow nearly all the common vegetables and small fruits in representative varieties, that the children might become familiar with the whole range of garden products. The plans were well carried out, if one takes into account that the work was built up from the very ground this spring, and that all the labor was performed by children who were gaining skill and interest and were not already skilful or deeply interested.

Perhaps the most interesting bed was that of herbs, twenty-two three-foot rows of herbs. Heavy rains washed out the seeds at first, and some of the perennials did not germinate, but more than half the sorts of herbs grew vigorously and attracted the attention of the public. A cold frame,

six feet square, has been given the school by the School Committee, and with the aid of this the other perennial herbs will be started the coming year.

Varied efforts were made to properly guide the children in their work. Under the direction of their teachers several hundred wrote to the Department of Agriculture for some of the Farmers' Bulletins that discuss the culture of vegetables. A little later the principal secured four hundred copies of the new bulletin, Annual Flowering Plants, and distributed them to those growing flowers at home. Under the principal's direction a series of nature lessons on soils, their relation to plants, formation, texture, tillage, and enrichment were given in every schoolroom. After experiments and discussion of a topic, the pupils wrote their own account of it, or copied a summary statement of the general truths taught as a dictation lesson, and to provide a substitute for a textbook. This placed the work on an intelligent basis. Efforts were made, with partial success, to secure supervision of the home gardens by a committee of the Houghton Horticultural Society.

One teacher personally supervised the preparation of individual garden plots by half of her boys and girls at a vacant lot an eighth of a mile from the school. Lettuces, radishes, beans, and a few other garden crops were sown. The garden was well kept throughout the spring and gave the pupils valuable training. In the summer the rest of the lot was used for similar crops by the pupils of the vacation school held in the Cobbet district. Another vacant garden lot on the eastern border of the ward was used by the boys and girls of the neighborhood for individual gardens under the direction of the principal. It justified itself in the training given, and in the crops harvested in June and July. For some weeks it was a center of interest for the older folk of the neighborhood. When families scattered for the summer, depredations commenced and the few children remaining lost heart.

For the coming year, each plot at the school yard has been put in charge of the teacher and pupils of a certain class. Only two or three vegetables will be grown in any one plot, and it is planned to sell all vegetables raised that we may complete payment for the soil we are using. The beds are in neat condition, ready for the earliest spring planting. Spinach is already started in one bed, ready for active growth in the earliest spring.

### WILD-FLOWER GARDEN.

The wild-flower garden has flourished. The shrubs are growing vigorously in most cases. Most of the flowering plants and ferns are prospering. Some annuals, like the jewel weed and beggar ticks, sprang up by hundreds and had to be weeded out by hand. The position of the garden beneath vigorous trees is somewhat of a disadvantage, as your chairman noted last year; but we have made the best use possible of our opportunities, and the plants have responded well, for of course they have to meet the competition of trees in their native haunts.

From last November to this date additions have been frequently made during the entire open season, although more slowly than during the first two years. Two hundred fifty of the commoner shrubs, plants, and ferns being already established, desirable additions suited to our conditions were not easily obtained. Eight miles back in Essex County the rhodora was found, and several square feet of roots and soil were pressed into a bag and brought to school, where it continued to blossom as though undisturbed. In May a trip into southern New Hampshire was made aud bulbs of trilliums, roots of violets, twisted stalk, clintonia, closed gentian, pinxter flower, red-berried elder, and many other plants and shrubs were brought back and planted. In the summer a large bagful of plants from central New York was brought home and established in the garden. In August more plants were obtained in southern New Hampshire, and rare plants and ferns from near Dixville Notch. In September an expedition to Martha's Vineyard yielded a dozen new species including the butterfly weed. At the end of October a trip to Lebanon, New Hampshire, secured many rootstocks from a large colony of magnificent ostrich ferns and maidenhair ferns. Some of these were given to Pine Grove Cemetery and to neighbors who have helped the Cobbet gardens. A census of the garden and corrected map are planned for the coming year It is safe to say that full more than three hundred species of wild plants are prospering in the garden.

The swamp and pond features are but partially established as yet, and wait completion this coming year. Many sedges and waterside plants from Lynn watersides are already established about the tubs, however.

The teacher of botany in the Lynn High School visited the gardens in May and was delighted with the wild garden. She at once asked the privilege of taking her classes there for observation and study, since more species could be seen and studied there than would be found in several walks afield.

Many of the wild plants, and the various vegetables also, have been noted by little wooden markers bearing the common name and a phrase or two of comment. These have not only served as a means of silently teaching the pupils, but they have also interested the public.

This autumn a new feature of the garden has been started, the grouping of allied species and genera in the long bed bordering another section of the yard, to train the children to recognize families of plants and to note the various species of fern, asters, goldenrods, violets, trilliums, grasses, sedges, and the like.

Little as yet has been done with wild-flower gardens at the children's homes, for fear they might become too enthusiastic in uprooting wild plants. We are planning to experiment another year in raising a few sorts of desirable wild flowers from the seed, with which to stock home gardens.

Some twenty linear feet of the front strip of wild garden is not yet planted with native growth. This has been used as a geographical garden.

Plots, a square yard in area, were planted to wheat, rye, barley, oats, buckwheat, millet, kaffir corn, field corn, broom corn, alfalfa, cow peas, rice, flax, hemp, chicory, tobacco, and cotton. Most of these crops grew well, although the partial shade prevented the fullest success with all. The cotton came into bloom in September. The alfalfa is ready for renewed vigorous growth in the spring. The chicory roots are now ready for harvesting.

It is evident that we have planned to closely relate the school garden to school studies, notably geography and nature study. From the time of the first hepatica and bloodroot until the shrubs put on their brilliant autumn foliage, and the dry seed pods rose above the snow, the garden has supplied material for drawing lessons.

The gardens of flowers — perennials, annuals, and bulbs — have been maintained and extended. The severe winter killed some of the supposedly hardy plants. These were replaced by divisions and clumps of hardy sorts from gardens in the school district. We have commenced to give root divisions in return. In fact, our gardens of cultivated flowers are designed not alone to beautify our yard, or to familiarize the children with garden flowers of all kinds, old and new, or to instruct the children as to their proper care, but as well to place flower growing on as economic a basis as the growing of vegetables. This year hardy flowers have been started from seed, and another season the young plants, also divisions from the vigorous clumps in the garden of hardy flowers, will be either sold at a moderate price or awarded as prizes to pupils giving their home gardens the best care. The multiplying bulbs from cannas and dahlias are being used in the same way. Over a hundred gladioli have been grown this year. Many were seedlings, which cost little but produce vigorous bulbs in a year or two, for use as above.

In addition to several sorts of annuals grown from seeds, and the flowers from summer flowering bulbs, we have this year had several kinds of tender plants grown in greenhouses and planted out in the summer. Among these were two dozen plants of carnation pinks. They grew thriftily and produced many buds. Unfortunately every one knows the value of carnations for buttonhole bouquets, and the older gamins of a neighboring tenement district saw that all opening buds were picked every evening.

The past spring the policy of distributing divisions of hardy plants secured from gardens in the district was continued. Over fifty divisions of iris, and many young lilacs, for instance, are recalled now as given out for home planting, one to a pupil.

Three hundred new tulips have been secured, also several hundred narcissus, crocus, and Scilla Sibirica. Some have been permanently established among the hardy plants.

The work of the school has continued to receive the commendation of the community as expressed in the newspapers and by the comment of many individual citizens expressed to the teachers. At the annual exhibition of the Houghton Horticultural Society in September the two first

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prizes offered to schools were both awarded the gardens of the Cobbet School.

We cannot claim for our work completion — probably we shall never attain our ideals — but the Cobbet gardens have, so far as we know, as broad and far-reaching aims and as varied character as any school garden. We can claim their close relation to school work in that they are based on class instruction on soils, the nature of important plants, weeds, etc., and in that the garden supplies material for illustrative use in several studies. We are making the gardens a valuable feature of the civic life of our ward in that they are teaching all passers-by as well as the children, and because they are repeated in hundreds of children's home gardens throughout the district. We hope to put the gardens now wholly on the practical basis of paying for themselves by the raising of vegetables, hardy flowers, and bulbs for sale.

While often disappointed with our work ourselves, we yet hope the thoughtful planning and hard work given the gardens may favorably impress your committee and secure some award that shall encourage the children to more faithful efforts in the coming season of 1905.

## Children's Home Gardens.

We this year offered for the first time prizes for home gardens and as the offer did not appear until July, we think we have an indication of its value, since we received five entries. We hope for excellent results from our home-garden work and expect to report good progress another year.

The great value in the home garden comes where the school garden is impossible, and again after the children have had school-garden work they are prepared to have a garden at home, so in the home garden we have a natural outcome.

Perhaps a word should be said about what we mean and what we want. We want a small, well-kept garden, prepared, planted, and cared for by one child. The work may be directed by a teacher, a parent or by anyone interested but it must all be done by the child, either girl or boy.

A letter must be written describing the garden, its preparation, size, the flowers and vegetables planted, care and the crop. We will visit the gardens as far as possible and hope to see a great many well-cared-for little plots during the summer. Let the letters be short, carefully written and clear; the manner in which the letter is expressed and its appearance will be considered in awarding prizes. Children will find it desirable to keep a diary of the

garden from which to write the letter. A picture of the garden or some part of it is also required.

The new prize list increases the number of prizes offered from three to ten and we hope to see a great many entries.

As has already been mentioned, we expect to exhibit the pictures, etc., of both the school gardens and home gardens at the Exhibition of Children's Herbariums in November. Those making school-garden reports are especially requested to send with the reports pictures, drawings, essays, and other interesting matter so that we may have plenty of good material.

The home gardens at Ayer were visited early in September and while too late to be seen in their prime, the gardens showed that they had been carefully planted and cared for. It is interesting to note how the work of our committee is restricted to certain definite sections where the work with the children has been started by some interested teacher, parent, or outsider. These little colonies thrive and the work spreads. Who is willing to start new colonies in new fields? It is the starting that is required; once started the work seems to carry itself along. At Ayer the Woman's Club has taken the work up and much good is being done. The children, when not otherwise busy, are given something to do and to think about, and good results will surely follow in uplifting the people of that town.

The letters from the prize winners this year follow.

### LETTER FROM HENRY L. BROWN, AYER, MASS.

#### FIRST PRIZE.

I have had a garden for three years. I thought I would have a large and better one so I enlarged it one hundred five square feet.

I spaded up the soil to the depth of about twelve inches and scattered the fertilizer over the top. Then I dug it up so the two were thoroughly mixed. With a rake I smoothed it all over. My garden is twenty-one feet square. Next I began to make the beds. I raised them three or four inches above the paths.

I planted corn, peas, tomatoes, lettuce, radishes, turnips, cucumbers, beets, and muskmelons.

I planted the hills of corn two feet apart and three inches deep. When the plants were six inches high I thinned the plants to three in a hill. I planted three rows of peas each ten feet long. The rows were two feet apart and the seed three inches deep. I did not thin them out at all.

The vines grew to be six or seven feet high. I planted my tomato plants two feet apart. The vines grew very rank as I had no braces. When I tried to brace them the branches had sent roots into the ground so I could not. I took a board about ten inches wide to make straight rows in which to put the lettuce seed. The lettuce did very well at first but when it began to get very hot it turned the leaves brown and the green leaves were bitter. I did not thin out my lettuce but cut the leaves from every other plant. I planted my radishes the same way as I did the lettuce. I thinned my radishes out to a plant every inch and one half. My radishes were good when they were small but when they were large worms spoiled them.

I planted my turnips the same way I did my radishes but a little deeper. I thinned them to a turnip every three inches.

Most all of my turnips grew to be very large. The skin on the bottom of the turnips looked as if they were wormy, but inside of the skin they were as white as could be.

I planted my cucumbers but they did not grow perfect; some grew almost round. I planted my beets the same way that I did my turnips, the same depth and the same distance apart. I thinned them to a beet every two inches My beets are a little late but I think they will grow to be large ones. I planted four hills of muskmelons two feet apart, and three hills came up. I thinned them down to three plants in a hill.

The following is a list of my garden produce:

Corn, 16 dozen ears; peas, 15 quarts; tomatoes, 2 bushels; lettuce, 50 heads; radishes, 8 bunches, 8 in a bunch; beets, 5 bunches, 8 in a bunch; turnips, 7 bunches, 8 in a bunch; cucumbers, 3 dozen; muskmelons, 14 good ones.

The Woman's Club arranged a garden exhibit where I sent my vegetables and got second prize on collection of raised vegetables. I kept watch of my garden and tried to keep it well weeded.

Next year I hope I can get some better seed and have a better garden to tell about.

### LETTER FROM WILLIE L. PATTERSON, GROTON, MASS.

#### SECOND PRIZE.

I think a garden is just fine. I like to watch the plants grow. Some of the plants grow slowly and some fast. My garden contains 5,000 square feet of ground. It is 100 feet long and 50 feet wide. I used pig manure. My garden was planted the first part of May. It was planted by hills. I planted Old Colonial; it is a late corn. I had 375 hills and got on an average of eight ears off each hill, getting about 3,000 ears from five rows.

I planted my beans about the first of May. I planted the beans by hills. I had 80 quarts. I planted the black-eyed string beans. I planted the

low peas and some high ones. I sowed them in rows. I picked about 32 quarts. I had Rice's curled and plain lettuce. I do not know what kind of radish seed I had; all I know is they were very long and two inches thick. I planted the radish and lettuce the first of May. I planted parsnips, the seed was sown in rows. I had five tomato plants planted the first of May. I planted my beets the first of May in rows. I planted my cucumbers the first of May in hills; had eight hills. I planted carrots the first of May in rows.

I planted squash the first of May. They were Hubbard squash. I planted shell beans the middle of May in hills.

I got 200 heads of lettuce, 100 radishes, 150 parsnips, 32 quarts tomatoes, 200 beets, 250 carrots, 96 cucumbers, 12 turnips (experiment), 30 large Hubbard squash and 20 small ones, 12 Brussels sprouts, 128 quarts shell beans.

I did not sell a thing. I gave away 30 quarts of string beans, 20 cucumbers, 1,200 ears of corn, 10 quarts peas, 50 quarts of shell beans. My garden has learned me many lessons. It has kept my father from buying a vegetable except potatoes all summer. I have enjoyed it very much. I like it because it makes you very careful. I thank you very much for the interest which you have taken in my garden.

LETTER FROM JOHN MULLIN, AYER, MASS.

THIRD PRIZE.

I was surprised and pleased to think you came up here. I know you must be interested in gardens to come up so far to see them.

Early in the spring I began to get ready for my home garden. I dug the ground about one-half foot deep and turned it over and broke the cakes. My garden is about fifteen feet square. For fertilizer I used phosphate. Before I planted my seed I mixed some phosphate in the dirt, but too much would burn the plants. I had seven kinds of vegetables: peas, beans, beets, turnips, corn, muskmelon, and tomatoes. I planted two rows of peas about two inches deep and had about two quarts of them. My beans were fine and we had about three quarts of them. My turnips were not so good because the worms bothered them. My corn was planted side of an old shed and was not very plentiful. I had about twelve ears of corn and it was very nice. My muskmelon was soon crowded out by my tomatoes and it did not grow. My tomatoes were fine. I had about a bushel and some of them were very large.

My Indian pinks and poppies were tramped on by the coal team. My pansies were scratched up by the dog and cat. My sweet peas were good while they lasted. My marigolds were fine and I had a large bed of them single and double. My nasturtiums blossomed nicely and were large.

The exhibit came off September 14 and it was very good. I exhibited a large plate of tomatoes, large and small, for which I got first prize. I exhibited beans, beets, and corn, and a bouquet of mixed flowers, for which I got first prize for the largest variety. I have been in the school garden three years and expect to be in it next year if they have any.

HENRY L. BROWN'S GARDEN—FIRST PRIZE.

JOHN H. MULLIN'S GARDEN—THIRD PRIZE.

## Children's Herbariums.

We were literally flooded with herbarium specimens at the exhibition on November 25 and 26. There were 2,316 specimens sent in, out of which the committee accepted and made awards for 1,815, as follows: 1,175 sheets flowering plants, 104 grasses and sedges, 120 ferns, 200 leaf sprays, 103 mosses, and 113 lichens. Over twenty dollars more was awarded than last year and that was not enough. We were obliged to turn aside a number of worthy sheets raising the standard considerably above other years in order to come within our appropriation. Last year about 1,100 specimens were sent in with about 60 thrown aside. This year we were obliged to discard 301 sheets, a larger proportion than before but not altogether due to hasty and poor mounting. To obviate this difficulty a number of changes have been made in our prize list.

We hope next year to have a more interesting exhibition, having introduced cultivated as well as native plants. This with a limit set on the number of sheets allowed in the easier classes to procure should give us an exhibition of higher standard in respect to quality of sheets shown and one interesting to horticulturists as well as botanists. It is hoped this will also bring the herbarium work in closer touch with the school-garden work. We expect to show pictures and other interesting material from the school-garden and home-garden prize winners. Prize cards will be put on the exhibitions, and with the proposed new arrangement of sheets which we have in mind we hope for an exhibition which will prove interesting and educational to all visitors.

The specimens exhibited were up to the standard of previous exhibitions and in some cases perhaps even better. Some of the children sent in a large number of excellent sheets showing that a great amount of time must have been spent in their preparation. We hope to have as many and fine sheets sent in next year and have planned so that we shall be able to take care of all that we receive.

In selecting sheets to send in try to send the best and most interesting. A large number of sheets representing one family, as many genera and as many species of each genus as possible always add interest to the exhibition. In selecting cultivated plants

for pressing care should be used to select plants that will dry easily, not such plants as carnations, double dahlias, roses, etc., which are likely to turn black.

Mosses and lichens have been left out of the prize list for next year. They are difficult for the children to name and we feel we must cut out something and have, therefore, cut here. The exhibits this year of these were extremely good. An interesting collection was sent in from New Westminster, B. C., made by Mr. Albert J. Hill. We are always grateful for these collections, which help to make the exhibition interesting, and will be glad to show any which may be sent.

You are reminded that the exhibition of Children's Herbariums comes the Friday and Saturday following Thanksgiving and that a visit to it will prove interesting as well as instructive.

### Native Plants.

The exhibits of native plants were full and in every way very successful. Some of the committee were on hand to award prizes at each exhibition and while this work has been put on our hands by joining the Native Plant Committee of last year with our committee we think the work has been well done. Some notes on the exhibitions follow:

At the exhibition of June 4, 5, a number of plants of especial interest were exhibited. Among them specimens of *Triosteum perfoliatum* L, the first reported instance in the state, having been reported previously in New England from Connecticut only. The plant was collected at East Weymouth and exhibited by Mrs. Arthur Clark; specimens of the more common species, *Triosteum aurantiacum*, Bicknell, were also shown for comparison.

At the same exhibition *Cypripedium pubescens* and *C. parviflorum* were shown by Miss Shattuck and Mrs. Colburn. These illustrated the intergradation of the two species, the *parviflorum* now being generally regarded as a variety of *pubescens;* this point was well brought out by the specimens exhibited.

At the Exhibition of June 21–22, New Hampshire, Vermont, and central and western Massachusetts were represented by many species unfamiliar to residents of eastern Massachusetts. Especially interesting were *Baptisia australis* from Bellows' Falls,

Vt., *Botrychium lanceolatum* and *B. simplex* from Keene, N. H., and *Dalibarda repens* from Holbrook, Mass., the nearest locality to Boston at which it has ever been found.

At the exhibition of August 6, George E. Davenport made a display of thirty-seven species and varieties of ferns grown in his garden at Medford. Among them were many interesting specimens of variant forms, such as *Aspidium spinulosum*, var. *Concordianum*, *Nephrodium marginale* x *cristatum*, *Dicksonia pilosiuscula*, var. *cristata*, and *Nephrodium Goldieanum*.

A number of changes have been made in the rules for exhibitions which we hope will make the matter clearer and better for both the exhibitors and the committee. Owing to lack of funds we have been obliged to make the amount of the first prize $5 instead of $6; otherwise the prizes remain the same. We hope this will in no way deter exhibitors and regret that we are obliged to make the change.

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As will have been seen, we are trying to make advances in what we hope will prove the right direction. We have the enthusiasm, as seen by the prompt attendance at exhibitions and committee meetings by the members of the committee, we have an appreciative public and we hope the Society will encourage us to further work by increasing our appropriation to meet the demands of our advance movement; unless we have an increase our work will be seriously hampered.

## Prizes and Gratuities Awarded, 1904.

### SCHOOL GARDENS.

| | |
|---|---|
| Fairhaven School Gardens, first prize | $15 00 |
| Children's Gardens, Groton, second prize | 12 00 |

### HOME GARDENS.

| | |
|---|---|
| Henry L. Brown, Ayer, first prize | $5 00 |
| William L. Patterson, Groton, second prize | 3 00 |
| John H. Mullin, Ayer, third prize | 2 00 |

### CHILDREN'S HERBARIUMS.

| | |
|---|---|
| Elsie Bailey, Groton, 44 flowering plants | $1 25 |
| Edna C. Brown, Ayer, 33 flowering plants | 1 00 |

| | |
|---|---|
| Henry L. Brown, Ayer, 50 flowering plants | 1 50 |
| Edna Chaffin, Ayer, 142 flowering plants | 4 25 |
| Una A. Chaffin, Ayer, 12 ferns and 50 leaf sprays | 3 50 |
| Austin W. Cheever. Mattapan, 170 flowering plants, 47 grasses, 52 sedges, and 15 ferns | 13 00 |
| Dorothea Clapp, Dorchester, 41 lichens | 2 70 |
| Dudley Clapp, Dorchester, 97 mosses | 5 75 |
| Margaret Cleary, Groton, 12 flowering plants | 35 |
| Ruth W. Fisher, Ayer, 98 flowering plants and 30 leaf sprays | 4 75 |
| Marion L. French, So. Framingham, 41 flowering plants | 1 25 |
| Olive W. French, So. Framingham, 70 flowering plants, 5 sedges, and 72 lichens | 7 25 |
| Henry G. Holbrook, Norfolk, 36 flowering plants | 1 25 |
| Hazel Irwin, Ayer, 13 ferns and 70 leaf sprays | 4 75 |
| Lois A. Leavitt, Ayer, 158 flowering plants, 32 ferns, and 50 leaf sprays | 9 75 |
| Gladys Mason, Groton, 169 flowering plants, 14 ferns, and 6 mosses | 5 80 |
| Anna R. Mann, Norfolk, 75 flowering plants | 2 25 |
| A. Belle Munroe, Groton, 15 flowering plants | 45 |
| Mabel Sargent, Ayer, 20 flowering plants | 60 |
| Florence Webster, Haverhill, 34 ferns | 4 00 |
| Barbara Williams, Newton Highlands, 42 flowering plants | 1 25 |
| Alice Woods, Groton, 12 flowering plants | 35 |

### NATIVE PLANTS AND FERNS.

May 7.

NATIVE PLANTS.— Collection of 30 bottles of named species and varieties, one bottle of each:

1st, Mrs. Arthur Clark, $6; 2d, Mrs. Abby S. Colburn, $4; 3d, Misses E. A. and M. S. Doran, $3: 4th, Miss Isabelle C. Shattuck, $2; 5th, Cobbet School, $1.

June 4–5.

NATIVE PLANTS.— Collection of 30 bottles of named species and varieties, one bottle of each:

1st, Mrs. Arthur Clark, $6; 2d, Mrs. Abby S. Colburn, $4; 3d, Misses E. A. and M. S. Doran, $3; 4th, Miss Isabelle C. Shattuck, $2; 5th, Miss Katherine Buitta, $1.

June 21–22.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle each:

1st, Mrs. Arthur Clark, $6; 2d, Mrs. Abby S. Colburn, $4; 3d, Misses E. A. and M. S. Doran, $3; 4th, Miss Isabelle C. Shattuck, $2; 5th, Miss R. L. Mann, $1.

July 16.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle each:

1st, Mrs. Arthur Clark, $6; 2d, Misses E. A. and M. S. Doran, $4; 3d, Mrs. A. S. Colburn, $3; 4th, Miss Katherine Buitta, $2.

*Gratuity:—*

Miss R. L. Mann, Display of native plants not entered for prize, $1.

July 23.

NATIVE FERNS.— Collection of named species and varieties:

1st, Miss Isabelle C. Shattuck, $5; 2d, Mrs. Arthur Clark, $4; 3d, Chester C. Kingman, $3.

*Gratuity:—*

G. E. Davenport, Display of ferns not entered for prize, $3.

August 6.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties one bottle of each:

1st, Mrs. Arthur Clark, $6; 2d, Miss Isabelle C. Shattuck, $4; 3d, Misses E. A. and M. S. Doran, $3; 4th, Miss R. L. Mann, $2; 5th, Miss Katherine Buitta, $1.

September 22–25.

NATIVE PLANTS.— Collection of 40 bottles of named species and varieties, one bottle of each:

1st, Misses E. A. and M. S. Doran, $6; 2d, Carl Blomberg, $4; 3d, Mrs. Arthur Clark, $3; 4th, Miss Isabelle C. Shattuck, $2; 5th, Miss Ida J. Henderson, $1.

| | | |
|---|---|---|
| HENRY SAXTON ADAMS, | Wellesley, | *Committee on School Gardens and Native Plants* |
| MISS KATHARINE W. HUSTON, | Roxbury, | |
| CHARLES W. JENKS, | Bedford, | |
| W. E. C. RICH, | Roxbury, | |
| WILLIAM P. RICH, | Chelsea, | |
| MISS MARY RODMAN, | Concord. | |

SCHOOL GARDENS AT FAIRHAVEN MASS.

# REPORT OF THE DELEGATE TO THE STATE BOARD OF AGRICULTURE FOR THE YEAR 1904.

The past year has been one of some note to the Board, both from its difficulties and its activities. The Governor in his inaugural address recommended a reorganization of this body and later presented a bill to the Legislature covering his recommendation. The Governor's bill restricted the duties of the Board to such an extent as to make it virtually a useless body. The farmers of the Commonwealth resented this curtailment of their privileges and protested vigorously, both directly and through their friends, as a plan of different tenor had been formulated by the Board, and had later been presented to the Legislature, with an additional one by W. H. Bowker, defining his views on the subject. These bills were fully considered by the committees, public hearings were given extending over several days, and finally all were referred to the next Legislature.

The annual summer meeting of the Board was held at the Massachusetts Agricultural College, Amherst, at which Dr. Henry T. Fernald gave a public field demonstration for preparing and applying the remedy of salt, lime, and sulphur wash for the San José scale, also of the fumigation of trees with hydrocyanic acid gas to destroy the same insect.

Prof. F. A. Waugh gave a demonstration which was particularly interesting explaining the preparation of Bordeaux mixture and the effects produced by spraying with different kinds of nozzles at high and low pressure.

Prof. Wm. P. Brooks exhibited three leading varieties of separators at the dairy school, showing the method of operation and action of each, followed by a demonstration of the Babcock test and the latest model of Farrington's Pasteurizer. The meeting closed with a lecture by Dr. Geo. M. Twitchell of Augusta, Maine, editor of the Maine Farmer. There was a very large

attendance on this occasion from other sections of the State indicating an earnest desire for information on agricultural subjects and for practical methods of overcoming the insidious insect pests.

The usual Crop Reports have been published commencing with the month of May. Special articles have been appended to these reports as follows:

May. The Hay Crop of Massachusetts, by Prof. Wm. P. Brooks, Amherst.

June. The growing of Mushrooms, by Dr. Geo. E. Stone, Amherst.

July. The Gypsy and Brown-tail Moths, by A. H. Kirkland, Boston.

August. Harvesting and Marketing Apples, by Prof. F. A. Waugh, Amherst.

September. Breeds for the Farm, and Farmers as Poultry Breeders, by John H. Robinson, Boston.

October. Bee keeping; how to meet its dangers and difficulties, by Burton W. Gates, Worcester.

All but the October bulletin were illustrated. There have also been issued the following Nature Leaflets:

Leaflet No. 20, Massachusetts Weeds, by Prof. Geo. E. Stone, Amherst.

Leaflet No. 21, Potato Rots, by Prof. Geo. E. Stone, Amherst.

Leaflet No. 22. Hints for Outdoor Bird Study, by Edward Howe Forbush:

No. 1. How to identify birds.
No. 2. How to find birds.
No. 3. How to approach birds.
No. 4. How to attract birds.

These leaflets are in demand for schools.

The public winter meeting of the Board was held at South Framingham, December 6, 7, and 8, and was of unusual interest. The lectures were given by gentlemen eminent in their several specialties and were all of high order. They were as follows:

Producing and Marketing Milk, by Frank B. Allen of Springfield. It covered the whole subject of stock; how to house it,

and how to feed it; how to milk, and how to cool it; how to ship to market, and for just prices.

The Profitable Dairy Cow, by Prof. Charles S. Plumb, Professor of Animal Husbandry, Ohio State University, Columbus, Ohio. This was an exceedingly interesting paper, and given in an original manner.

Methods and procedure in the National House of Congress, by Hon. J. D. Long. This address by one of such large experience formed a very important feature of the session.

The Advisability of Agricultural Education in Elementary Schools, by Prof. L. H. Bailey, Director College of Agriculture, Cornell University, Ithaca, N. Y. It was a paper well worthy of the reputation of its author.

The Present Definition of Fertility, by Dr. W. H. Jordan, Director New York Agricultural Experiment Station, Geneva, N. Y.

A reception to the Board of Agriculture and others followed which was enlivened by an address from his Excellency, Gov. John L. Bates.

The next morning an address was given on Food Adulterations, by Dr. H. W. Wiley, Chief of Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C. After the adjournment of the Board many members visited Millwood Farm, Framingham, by invitation of N. I. Bowditch. This is a very large estate of several hundred acres devoted to the production of milk and sustains 180 head of cattle; 100 of them in milking; which product is supplied by contract to hospitals. The estate is conducted under the modern intensive system of culture.

The new Secretary of the Board, J. Lewis Ellsworth is doing excellent work.

WILLIAM H. SPOONER,
*Delegate.*

December 31, 1904.

# REPORT OF THE INSPECTOR TO THE STATE BOARD OF AGRICULTURE FOR THE YEAR 1904.

*To the State Board of Agriculture,*

GENTLEMEN:—In response to your directions I hereby respectfully report upon the Massachusetts Horticultural Society, which holds so high a position in the horticultural affairs of the country and the world. It is the recipient of the bounty of the Commonwealth and well deserves it; and could very properly be intrusted with any sum of greater degree, and the taxpayers be assured of its being wisely expended on the lines that might be directed.

Many members give their services freely in order that the promotion of horticultural interests shall redound to the prosperity of the State, through increased energy, and broadened markets, among her citizens.

As stated in my report for 1903, the organization of the Society was improved by the unanimous action of its members and has recently been still further perfected, so far as has been possible under the Act of Incorporation granted by the Legislature of 1829. The Society has just now, on November 19th, voted unanimously to petition the general Court of 1905, to so amend the Act of Incorporation that its Treasurer and Secretary may hereafter be named by the Board of Management which the Society elects.

I ask that the Board of Agriculture by its representatives favor such action.

The Society has continued to hold numerous free exhibitions where awards of merit are bestowed; and also exhibitions of more elaborate character at which an admission fee is charged. The expenses of the Society in its charitable work are heavy and the question of receipts is of great importance.

During the winter season ten Saturdays have been devoted to

the delivery of addresses by prominent horticulturists, followed by discussions and enquiries. These events occurred during the months of January, February, and March.

As the horticultural branch of agriculture is every year increasing in breadth and importance throughout the State, so do the many fields for work by this Society increase. She needs and deserves a very considerable increase of her endowment funds.

Let everyone, who is cognizant of the subdivisions of Horticulture, and who knows how worthy a recipient the old Massachusetts Horticultural Society would be, never fail to add a good word in favor of an increase of her endowment funds. I highly commend her work to you.

Respectfully submitted,

FRANCIS H. APPLETON,

*Inspector.*

# REPORT OF THE COMMITTEE ON LECTURES AND PUBLICATION FOR THE YEAR 1904.

BY AARON LOW, CHAIRMAN.

The Committee on Lectures and Publication presents the following summary of its work for the year.

A course of ten lectures was given during the winter as follows:

January 16. The Gypsy Moth and its Ravages. By John K. M. L. Farquhar, Boston.

January 23. Trees, Flowers, and Fruits of the East. By Henry H. Goodell, Amherst.

January 30. Practical Nature Study for the Public Schools. By Mrs. Cora C. Stuart Jones, Roxbury.

February 6. The Arnold Arboretum. By John G. Jack, Jamaica Plain.

February 13. My Experience and Observations in Horticulture. By A. A. Hixon, Worcester.

February 20. Orchids and their Culture. By William N. Craig, North Easton.

February 27. The Study of Parasitic Fungi in the United States. By Dr. G. P. Clinton, New Haven, Conn. This lecture was delivered under the John Lewis Russell Bequest.

March 5. The Protection of Native Plants. By Robert T. Jackson, Cambridge.

March 12. The Gladiolus. By Arthur Cowee, Berlin, N. Y.

April 2. The Peony. By George C. Watson, Philadelphia.

The annual Schedule of Prizes was issued in January and two numbers of the TRANSACTIONS have been published: those for 1903 Part II and 1904 Part I.

AARON LOW,
JAMES H. BOWDITCH,
E. W. WOOD,
ROBERT T. JACKSON,
EDWARD B. WILDER.
} *Committee.*

# REPORT OF THE SECRETARY AND LIBRARIAN FOR THE YEAR 1904.

Since most of the details of the work of the Society for the year are fully set forth in the report of the Board of Trustees and in the reports of the various committees, there only remain for the Secretary a few general and statistical observations.

The two meetings of the Society, as provided for in the By-laws, have been duly held: the Inaugural Meeting, January 2, and the Annual Meeting, November 19. The business transacted on these occasions is recorded in its appropriate place in the Transactions.

The publications of the Society for the year and the dates of issue are as follows:

January 23. Schedule of Prizes and Exhibitions, 48 pages

August 5. Transactions, 1903, Part II, pages 159–329 and 20 plates.

December 12. Transactions, 1904, Part I, pages 1–202 and 14 plates.

It is desirable to increase the value of the Transactions by the publication of original papers on horticultural subjects in addition to or in the place of those presented in the regular course of lectures. Such contributions are invited and will be considered by the Committee on Lectures and Publication.

A card index has been made this year of all the horticultural papers, addresses, memorials, and other matters of historical interest that are recorded in the Transactions from the institution of the Society in 1829 until the present time. This has been found already of great value and convenience.

## The Library.

Especial attention has been given during the present year to perfecting the library in the matter of horticultural periodicals.

Broken sets of several American and foreign serials have been made complete and others ordered that are not represented on our shelves.

By sales and exchange of duplicate material, additions to the library of the value of $129.67 have been made, practically increasing the library appropriation by this amount.

By the substitution of strong cloth material (art vellum of the bookbinder) in the place of the several kinds of leather formerly used in the binding of periodicals, a reduction of about twenty-five per cent has been made in the cost of binding, thereby enabling a corresponding increase in the number of volumes bound.

Through a special appppropriation of one hundred dollars by the Board of Trustees about fifteen hundred pamphlets have been separately bound in a durable manner. It is a source of gratification to the Librarian to have these pamphlets, many of which are of rarity and value, properly taken care of.

An additional card-catalogue case has been provided and a new book label adopted.

It is a satisfaction also to record the completion of six glazed cases for the better protection of our many valuable illustrated folios. With the addition of two more now in process of construction, through the generosity of a prominent and interested member of the Society, all of these books can now be properly taken care of without disarrangement of our system of classification. With the instalment of these several improvements attention will be given to the completion of the much-needed revision of the card catalogue which still bears the shelf numbers of the old library.

There have been received during the year a number of gifts of books and miscellaneous pamphlets which deserve grateful mention and comment in this report.

February 5 there was received from the Boston Athenæum, Charles Knowles Bolton, Librarian, a large number of reports and pamphlets relating to horticultural and agricultural societies. Among them were 66 nurserymen's and seedsmen's catalogues dating from 1824 to 1860; 208 agricultural reports and pamphlets; a number of the earlier reports and publications of the Massachusetts Horticultural Society; and interesting botanical papers on

various subjects. This gift is of value in enabling us to fill some gaps in sets of publications and will serve to call attention to the fact that this library is the proper place for the disposition of all such material. Even if a good deal is duplicate much of it can be advantageously used in exchange with other institutions.

There was received also from the Cambridge Entomological Society a case of old agricultural papers among which were found several volumes which were very welcome additions to the library.

April 23 Mr. William H. Spooner presented four books not previously contained in our collection.

These gifts suggest the remark that there is in the community much similar material which would be acceptable additions to the library.

William P. Rich,

*Secretary and Librarian.*

# REPORT OF THE TREASURER FOR THE YEAR 1904.

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MASSACHUSETTS HORTICULTURAL SOCIETY, *in account current with* CHARLES E. RICHARDSON, *December 31st, 1904.*

DR.

| | | | |
|---|---|---|---|
| To amount paid for Street Lamps charged to Real Estate | | | $808 50 |
| " " " " Furniture and Exhibition Ware | | | 629 72 |
| " " " " Library, appropriated by Society | $500 00 | | |
| " " " from Income of J. S. Farlow Fund | 115 72 | | |
| " " " " Income of J. D. Williams French Fund | 119 72 | | |
| | | | 735 44 |
| " " " for 11 Shares General Electric Stock | | | 1,100 00 |
| " " " " Interest on funds for prizes and other funds, credited opposite | | | 2,074 72 |
| " " " " Heating | 1,520 62 | | |
| " " " " Lighting | 884 31 | | |
| " " " " Water Rates | 57 40 | | |
| " " " " Labor | 1,899 83 | | |
| " " " " Stationery, Printing and Postage | 2,200 53 | | |
| " " " " Insurance | 496 37 | | |
| " " " " Incidentals | 882 13 | | |
| " " " " Repairs | 71 35 | | |
| " " " " Committee on Lectures and Publications | 200 00 | | |
| " " " " Committee on Forestry and Roadside Improvement | 9 20 | | |
| " " " " Salaries of Treasurer, Secretary and Assistants | 3,711 67 | | |
| " " " " Salaries of Committees | 864 48 | | |
| " " " " Tax on Real Estate in South Boston | 142 88 | | |
| *Amounts carried forward* | $12,940 77 | | $5,348 38 |

| | | |
|---|---|---|
| *Amounts brought forward* . . . | $12,940 77 | $5,348 38 |
| To amount paid for Electric Power . . | 68 62 | |
| " " " " Legal Services . . . | 100 00 | |
| " " " to A. H. Kirkland . . . | 30 00 | |
| " " " " Kenneth Finlayson . . | 60 00 | |
| | | 13,199 39 |
| For *Prizes awarded in 1903*, viz. | | |
| " H. H. Hunnewell, Triennial Prize . . | 160 00 | |
| " Prizes for Plants . . . . . | 1,498 48 | |
| " " " Flowers . . . . . | 1,312 89 | |
| " " " Fruit . . . . . | 977 87 | |
| " " " Vegetables . . . . . | 889 17 | |
| " " " Gardens and Greenhouses . . | 311 64 | |
| " " " Native Plants . . . . | 63 05 | |
| " " " School Gardens and Children's Herbariums . . . | 94 45 | |
| " H. H. Hunnewell, Prizes for Rhododendrons | 105 00 | |
| " Edward Hatch, Special prize . . . | 30 00 | |
| " Special prizes Chrysanthemum Show, N. Y., 1903 . . . . | 80 00 | |
| | | $5,522 55 |
| | | 24,070 32 |
| Balance of Cash December 31st, 1904 . . | | 12,388 80 |
| | | $36,459 12 |

Cr.

| | | |
|---|---|---|
| By Balance of account rendered December 31, 1903 . . | | $15,531 02 |
| " Received from Building in 1904, use of Halls, | $1,305 00 | |
| " " " Annual Exhibitions $1,957 25 | | |
| Less Expenses, 1,201 15 | | |
| | 756 10 | |
| " " " Admissions and Assessments | 1,036 00 | |
| " " " Mount Auburn Cemetery . | 2,760 08 | |
| " " " State Bounty . . . | 600 00 | |
| " " " Sale of History . . . | 3 00 | |
| " " " " " Transactions . . | 2 00 | |
| " " " Bequest of Francis Brown Hayes . . . . | 1,076 99 | |
| " " " Sale of 29 rights General Electric Stock . . | 165 30 | |
| *Amounts carried forward* . . . . | $7,704 47 | $15,531 02 |

| | | | |
|---|---|---|---|
| *Amounts brought forward* . . . . | | $7,704 47 | $15,531 02 |
| By Received from Edward Hatch, for Special Prize . . . . | | 30 00 | |
| " " " Gardeners' and Florists' Club, for Special Prize . . | | 50 00 | |
| " " " M. A. Patten, for Special Prize . . . . | | 10 00 | |
| " " " William Nicholson, for Special Prize . . . | | 10 00 | |
| " " " Interest on Bonds, | $9,665 00 | | |
| " " " " " Stock, | 1,134 00 | | |
| " " " " " Bank Balances, | 249 91 | | |
| | | 11,048 91 | |
| " Interest credited following funds charged opposite: | | | |
| Samuel Appleton Fund .. | $50 00 | | |
| John A. Lowell " . | 50 00 | | |
| Theodore Lyman " . | 550 00 | | |
| Josiah Bradlee " . | 50 00 | | |
| Benjamin V. French " . | 25 00 | | |
| H. H. Hunnewell " . | 200 00 | | |
| W. J. Walker " . | 117 72 | | |
| Levi Whitcomb " . | 25 00 | | |
| Benjamin B. Davis " . | 25 00 | | |
| Marshall P. Wilder " . | 50 00 | | |
| John Lewis Russell " . | 50 00 | | |
| Francis Brown Hayes " . | 500 00 | | |
| Henry A. Gane " . | 50 00 | | |
| John S. Farlow " . | 100 00 | | |
| J. D. Williams French " . | 200 00 | | |
| Benjamin H. Pierce " . | 32 00 | | |
| | | 2,074 72 | |
| | | | 20,928 10 |
| | | | $36,459 12 |

CHARLES E. RICHARDSON,
*Treasurer.*

Approved:

WALTER HUNNEWELL,
GEORGE F. FABYAN,
ARTHUR F. ESTABROOK,
} *Finance Committee.*

## ASSETS, DECEMBER 31st, 1904.

| | | |
|---|---|---|
| Real Estate | $516,980 86 | |
| Furniture and Exhibition Ware | 9,356 91 | |
| Library | 42,484 63 | |
| Stereotype Plates and Copies of History | 243 50 | |
| Chicago, Burlington & Quincy R. R. Bonds | 1,000 00 | |
| Kansas City, Clinton & Springfield R. R. Bonds | 1,980 00 | |
| Lake Shore & Michigan Southern, R. R. Bonds | 10,415 25 | |
| City of Newton, Bonds | 24,228 75 | |
| Atchison, Topeka & Santa Fe R. R. Bonds | 44,693 25 | |
| Chicago, Burlington & Quincy, "Nebraska Extension" R. R. Bonds | 50,012 50 | |
| Chicago & West Michigan R. R. Bonds | 9,987 50 | |
| Kansas City, Fort Scott & Memphis Consols | 27,523 75 | |
| Chicago, Burlington & Quincy, "Illinois Division," R. R. Bonds | 51,625 00 | |
| Boston & Maine R. R. Bonds | 8,710 00 | |
| West End Street Railway Company Bonds | 5,162 50 | |
| General Electric Company Stock | 11,016 70 | |
| W. A. Hayes and A. P. Loring, Trustees | 3,488 76 | |
| Cash | 12,388 80 | |
| | | $831,298 66 |

## LIABILITIES.

Prize and other Funds invested in bonds and stock:

| | | |
|---|---|---|
| Samuel Appleton | Fund, | $1,000 00 |
| John A. Lowell | " | 1,000 00 |
| Theodore Lyman | " | 11,000 00 |
| Josiah Bradlee | " | 1,000 00 |
| Benjamin V. French | " | 500 00 |
| H. H. Hunnewell | " | 4,000 00 |
| W. J. Walker, | " | 2,354 43 |
| Levi Whitcomb | " | 500 00 |
| Benjamin B. Davis | " | 500 00 |
| Marshall P. Wilder | " | 1,000 00 |
| John Lewis Russell | " | 1,000 00 |
| Francis Brown Hayes | " | 10,000 00 |
| Henry A. Gane | " | 1,000 00 |
| *Amount carried forward* | | $34,854 43 |

| | | | |
|---|---|---|---|
| *Amount brought forward* | $34,854 43 | | |
| John S. Farlow Fund | 2,500 05 | | |
| J. D. Williams French " | 5,144 15 | | |
| Benjamin H. Pierce " | 800 00 | | |
| | | $43,298 63 | |
| Prizes awarded in 1904, payable in 1905 | | 6,350 00 | |
| Miss Sarah B. Fay, Special Prize | | 50 00 | |
| M. A. Patten, " " | | 10 00 | |
| Gardeners' and Florists' Club, " | | 50 00 | |
| William Nicholson, " " | | 10 00 | |
| | | | 49,768 63 |
| Surplus | | | 781,530 03 |
| | | | $831,298 66 |

CHARLES E. RICHARDSON,
*Treasurer.*

## MEMBERSHIP OF MASSACHUSETTS HORTICULTURAL SOCIETY,

## DECEMBER 31st, 1904.

| | | | |
|---|---|---|---|
| Life Membership per last report | 686 | | |
| Added in 1904 | 19 | | |
| Commuted from Annual | 1 | | |
| | | 706 | |
| Deceased | | 32 | |
| | | | 674 |
| Annual members per last report | 182 | | |
| Added in 1904 | 13 | | |
| Reinstated | 1 | | |
| | | 196 | |
| Resigned | 2 | | |
| Commuted to Life | 1 | | |
| Dropped for non-payment of assessment for two years | 10 | | |
| Deceased | 10 | | |
| | | 23 | |
| | | | 173 |
| Present membership | | | 847 |

INCOME FROM MEMBERSHIP.

| | |
|---|---|
| 19 New Life Members @ $30 | $570 00 |
| 1 Commuted to Life @ $20 | 20 00 |
| 13 New Annual Members @ $10 | 130 00 |
| Assessments | 316 00 |
| | $1,036 00 |

CHARLES E. RICHARDSON,
*Treasurer.*

AUDITOR'S CERTIFICATE.

28 State Street, Boston, March 27th, 1905.

To the Finance Committee of the
*Massachusetts Horticultural Society,*

*Gentlemen:* — Having completed my audit of the books and general accounting affairs of the *Massachusetts Horticultural Society* for the year which ended with the 31st day of December, 1904, I herewith hand you my report of the same.

*Report.*

I added the ledger, journal and cash book and the small books tributary to the cash book and saw that all balances were correctly carried forward I examined and checked the vouchers representing the disbursements during the year, and found the amount of cash required by the cash book upon the first day of January, 1905, to have been on hand; and also inspected the securities of the Society in the custody of the Treasurer, and they were in all instances in accordance with the requirements of the records.

I traced all postings from the journal and cash book into the ledger, and proved the correctness of the balance sheet taken from the ledger as of the 31st day of December, 1904, which is a true statement of the financial condition of the Society upon said date, to the best of my knowledge and belief.

In short, I satisfied myself that the work in connection with the accounting affairs of the Society was being conscientiously and intelligently performed and that there was every evidence of fidelity upon the part of the Treasurer.

Very respectfully yours,
ANDREW STEWART,
*Examiner of Accounts.*

**Dr.** *Massachusetts Horticultural Society in account with the Proprietors of the Cemetery of Mount Auburn.* **Cr.**

For Sales and Improvements within the Cemetery for the year ending December 31st, 1904.

| | | | | | |
|---|---|---|---|---|---|
| To cost of filling up and improving land at Mount Auburn for the year ending December 31st, 1904. The Massachusetts Horticultural Society being charged with their proportion of same: | | | | By Sales in January | $ 432 00 |
| *Magnolia Avenue.* | | | | " " " February | 10 00 |
| 39.4 days, man | $ 88 65 | | | " " " March | 20 00 |
| 86.6 days, man and horse | 324 76 | | | " " " April | 675 00 |
| 6.9 days, man and two horses | 36 23 | | | " " " May | 2,790 00 |
| | | $449 64 | | " " " June | 1,093 00 |
| *Pearl Avenue.* | | | | " " " July | 2,028 20 |
| 18.1 days, man | $ 40 73 | | | " " " August | 270 00 |
| 3.6 days, man and horse | 13 50 | | | " " " September | 645 00 |
| | | $ 54 23 | | " " " October | 2,521 00 |
| | | $503 87 | | " " " November | 292 00 |
| | | | | " " " December | 800 00 |
| | | | | | $11,576 20 |
| | | | | Net amount received from Receiving Tomb | 1,393 00 |
| | | | | | $12,969 20 |
| | | | | Less graves repurchased | 25 00 |
| | | | | | $12,944 20 |
| One-fourth of $503.87 is | | | $ 125 97 | Deduct for Annual Expense | 1,400 00 |
| Balance due Mass. Horticultural Society | | | 2,760 08 | | $11,544 20 |
| | | | $2,886 05 | One-fourth of $11,544.20 is $2,886.05 | $2,886 05 |

E. and O. E

Boston, December 31st, 1904.

John L. Dill, *Treasurer.*

THE MASSACHUSETTS HORTICULTURAL SOCIETY

*To the* PROPRIETORS OF THE CEMETERY OF MOUNT AUBURN. *Dr.*

To cost of filling up and improving land at Mount Auburn for the year ending December 31st, 1904. The Massachusetts Horticultural Society being charged with its proportion of same.

*Magnolia Avenue.*

| | | |
|---|---|---|
| 39.4 days, man | $ 88 65 | |
| 86.6 days, man and horse | 324 76 | |
| 6.9 days, man and two horses | 36 23 | |
| | | $449 64 |

*Pearl Avenue.*

| | | |
|---|---|---|
| 18.1 days, man | 40 73 | |
| 3.6 days, man and horse | 13 50 | |
| | | 54 23 |
| | | $503 87 |
| One-fourth of $503.87 is | | $125 97 |

JAMES C. SCORGIE,
*Supt. of the Cemetery of Mount Auburn.*

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MOUNT AUBURN, December 31st, 1904.

I certify the foregoing to be a true copy of improvements for the year 1904, rendered by the Superintendent.

JOHN L. DILL,
*Treasurer.*

# THE ANNUAL MEETING, NOVEMBER 19, 1904.

## ANNUAL MEETING FOR THE YEAR 1904.

The Annual Meeting of the Massachusetts Horticultural Society for the year 1904 was held at Horticultural Hall, Boston, on Saturday, November 19, at twelve o'clock, noon.

The meeting was called in accordance with the By-laws for the election of officers for the ensuing year and for the transaction of other business, and a printed notice had been mailed to the address of every member of the Society as it appeared upon the records of the Secretary.

President Walcott presided and there were about fifty members present.

The record of the Annual Meeting, November 14, 1903, was read and approved.

Benjamin C. Clark reported on behalf of the committee appointed to procure a portrait of Ex-President Hadwen that the portrait had been obtained and hung in the hall of the Society. He asked that the report be accepted and the committee discharged, and it was so voted.

The President presented a recommendation from the Board of Trustees that the sum of $6506.00 be appropriated for prizes and gratuities for the ensuing year. The recommendation was unanimously adopted.

The President also presented a recommendation from the Board of Trustees that the Charter of the Society be changed so that the Treasurer and Secretary shall be appointed by the Board of Trustees instead of being elected by the Society as at present required. On motion of Mr. Clark the recommendation was unanimously adopted.

The President appointed Edward B. Wilder, J. Allen Crosby, and Patrick Norton a committee to receive, assort, and count the votes given and to report the number.

The polls were declared open at twelve o'clock, noon, and the ballots were prepared in accordance with the Australian system. On motion of Mr. Clark a recess until four o'clock was voted.

At four o'clock the President declared the polls closed and the ballot committee proceeded to assort and count the votes. At forty minutes past four Mr. Wilder, the chairman, reported the result of the ballot and the President announced the following named persons to be the duly elected officers of the Society for the year 1905:

| | |
|---|---|
| President, | Arthur F. Estabrook. |
| Vice-President, (for two years), | Robert T. Jackson. |
| Treasurer, | Charles E. Richardson. |
| Secretary, | William P. Rich. |
| Trustee, (for two years), | Arthur D. Hill. |
| Trustees, (for three years), | George F. Fabyan. |
| | Warren Fenno. |
| | J. Woodward Manning. |
| | John A. Pettigrew. |
| Nominating Committee, | Obadiah B. Hadwen. |
| | Henry S. Hunnewell. |
| | John Lawrence. |
| | Henry P. Walcott. |
| | James Wheeler. |

The following amendment to the By-laws was also declared adopted:

Proposed amendment to Section XIV of the By-laws.

Section XIV (Art. 1) to be amended by striking out the sentence which reads, "Said Committee shall nominate at least twice the number of candidates required to fill each office of the Society," and by substituting for the word "such," in the fifth line, the word "its," so that it shall read as follows:

A Nominating Committee of five members shall be elected by the Society at its annual meeting. Said Committee shall file its nominations with the Secretary at least one month before the annual meeting. The Secretary shall, immediately on receiving such nominations, post the same in some public place in the Society's building.

Adjourned.

William P. Rich,
*Secretary.*

# NECROLOGY, 1904.

# NECROLOGY, 1904.

Josiah Hoopes, a corrresponding member of the Society since 1875, died at West Chester, Pennsylvania, January 16, 1904. He was born November 9, 1832, in the same city in which he died, and from his earliest years was interested in the study of all that pertained to plant life. This interest finally developed into the establishment of a nursery business with 600 acres of land devoted to the cultivation and improvement of trees, shrubs, and flowering plants.

He made a special study of the Coniferæ suited to the climate of this country and embodied the results of his experience and observations in his "Book of Evergreens," published in 1868.

He combined in a marked degree with scholarly attainments the business ability necessary for the successful carrying on of a mercantile career.

Mr. Hoopes was a member of the Society of Friends.

Hon. Starkes Whiton was born in Hingham, Massachusetts, April 11, 1829, and died there February 12, 1904. He became a member of the Massachusetts Horticultural Society in 1880.

Mr. Whiton was a life-long resident of Hingham and was prominent in the affairs of his town and also of his state. He was the treasurer of the Hingham Agricultural and Horticultural Society for many years and always a contributor to its exhibitions.

He was deeply interested in horticulture and enjoyed his assso-ciation with the Massachusetts Horticultural Society, but his strenuous business life allowed him little time to indulge his tastes in that direction. He found opportunity, however, to exhibit occasionally the products of his garden at the exhibitions of the Society and was always proud of the award cards which he received.

Miss Mary Sophia Walker of Waltham died February 14, 1904. She became a life member of the Society in 1891. She

was in past years a frequent exhibitor at the exhibitions of the Society and was especially interested in the culture of roses and chrysanthemums.

William H. Halliday was born in Grandville, Nova Scotia, December 7, 1834, and died in South Boston, Massachusetts, February 25, 1904.

He became a life member of the Society in 1867 and was active in its work for many years, serving on the Committee of Arrangements almost continuously from 1869 to 1884 and a member of the Committee on Flowers from 1870 to 1877.

He was especially interested for a number of years in the cultivation of plants in Wardian and fern cases, making frequent exhibits of these at the exhibitions of the Society from 1868 to 1875. He presented also several papers on the subject which were printed in the Transactions of the Society.

He was engaged for the greater part of his life in the book-publishing business and was particularly interested in the old and historic buildings in New England and also in the portraits of its eminent men and women. He was interested in horticulture and a great lover of everything artistic.

Richard C. Manning died in Salem, Massachusetts, March 2, 1904. He was admitted a member of the Society in 1902.

Mr. Manning was born in Salem, January 30, 1830. His father was Robert Manning, well known in horticultural circles for his famous pomological garden and nursery which he established in Salem about the year 1823. After his father's death, in 1842, he and his brother Robert continued the garden for a number of years when it seemed best for Richard to take up some other business.

He always retained his interest in horticulture and in the Horticultural Society, often attending the exhibitions. He was interested in books on horticulture and landscape gardening as well as in general literature.

He lived at the old home on Dearborn Street until his marriage in 1865, and all his life he was strongly attached to the garden there, remembering the old trees and plants about the place and watching their growth year by year, looking for the earliest flowers

in spring, and interested in the succession of fruits and flowers through the summer and autumn. Many of the ornamental trees in the garden were placed there by him. He was a devoted lover of nature in all its forms.

He was prominently connected with many of the charitable, scientific, and business institutions of his native city.

By Miss Rebecca B. Manning.

George H. Braman was born in Boston, May 5, 1829, and died in Newton, March 2, 1904. He became a member of the Society in 1897.

Mr. Braman was a well-known business man of Boston in the dry goods line, retiring in 1898 after an active service of 52 years.

Robert Decourcey Ireland, who died at Winthrop, Massachusetts, March 18, 1904, was admitted a member of the Society in 1896.

Mr. Ireland was born in Dimmanway, Ireland, November 17, 1833. He belonged to an English family. He was greatly interested in flower culture and his garden at Winthrop was one of the attractions of the town.

Hon. Samuel Hoar was born in Concord, Massachusetts, September 27, 1845, and died there April 11, 1904. He became a life member of this Society in 1885.

John C. Chaffin of Newton, who died April 12, 1904, was a member of the Society since 1855. He was born at Princeton, Massachusetts, April 17, 1823.

Mr. Chaflin's special horticultural interest was in roses of which he was a great lover and an enthusiastic grower. Probably his greatest pleasure was centered in his rose garden in which he had, it is said, a thousand plants of the choicest varieties of Hybrid Perpetuals, and received annually from the best growers in Europe the most desirable new roses as they were introduced.

He was for many years a constant exhibitor at the rose exhibitions of the Society receiving the hightest awards for his displays. At the exhibition held June 30, 1868, he showed forty varieties of Hardy Perpetual roses.

His work will be continued through a bequest to the Society of one thousand dollars the income of which is to be awarded annually in prizes for Hardy Perpetual roses of unusual merit.

Mr. Chaffin was a successful merchant in Boston and was highly esteemed by all who knew him.

Herman Strater died at his home in Roxbury, Massachusetts, April 20, 1904, at the age of 68 years. He became a member of the Society in 1892.

Frederick Warren Goddard May was born in Boston, December 4, 1821, and died in Dorchester, May 28, 1904. He became a member of the Society in 1865.

Throughout his life Mr. May had a keen interest in all horticultural and agricultural matters and on his estate at Dorchester he put into practice many of his ideas relating to agricultural economy. He was always interested in any new facts concerning the cultivation of flowers, fruits, and vegetables.

Lucius H. Foster, died in Dorchester, Massachusetts, May 31, 1904, at the age of 57 years. He became a member of the Society in 1903.

Mr. Foster was a prominent commercial horticulturist and a frequent contributor to the Society's exhibitions. He introduced to the New England trade several specialties in roses, carnations, and ferns; among them his fern "Anna Foster," a unique sport from the Boston fern, was, perhaps, the most widely known.

Hon. Elisha Slade Converse was born in Needham, Massachusetts, July 28, 1820, and died in Malden, June 5, 1904. He became a life member of the Society in 1868.

For many years the extensive displays of flowering and foliage plants from the greenhouses and gardens of Mr. Converse have been marked features of the exhibitions of the Society. From his estate emanated plants of the chrysanthemum, especially, which were carried to a height of magnificence, in color, form, and profusion of bloom never before equaled in all the history of the Society.

He was a man of many interests, actively engaged in commercial enterprises, generous in philanthropic work, and a public-spirited citizen in the affairs of his city and his state.

Warren D. Hinds died at Townsend, Masssachusetts, June 21, 1904, in the 61st year of his age. He became a member of the Society in 1899.

He was a successful fruit grower. His orchards at Townsend in the northern part of the state were situated upon high land well adapted for the culture of the apple, peach, and plum, and he secured large and remunerative crops by judicious management and careful attention to improve methods of cultivation.

In 1897 and 1898 he was awarded the Society's prizes for the best peach orchard in the state, and for his orchards of apples and plums. He received also numerous awards at the regular exhibitions for his displays of various fruits.

Thomas Harrison of Melrose Highlands, Massachusetts, died June 21, 1904. He became a member of the Society in 1896.

Mr. Harrison was much interested in the work of the Society and was a regular attendant at its meetings and at the winter lectures, taking an active part in the discussions on horticultural and agricultural subjects.

Edward Butler, a member of the Society since 1873, died in Boston, June 25, 1904, at the age of 51 years. Mr. Butler was born at Pool Harbor, England, and came to this country in 1871 where he secured employment as a gardener to the Hon. William Claflin. He afterward entered the employ of Henry F. Durant, and when this estate became the seat of Wellesley College Mr. Butler remained in charge of the grounds until his death.

For many years he was a constant contributor to the exhibitions of the Society and his name frequently appears on its records as the recipient of honors bestowed in recognition of his skill as a gardener and plant grower.

American Florist, July 16, 1904.

James F. Harlow of Quincy, Massachusetts, died at Asheville, North Carolina, June 26, 1904.

He was born in Boston in 1866 and became a member of the Society in 1898.

Mr. Harlow was a graduate of Harvard in the class of 1888, studied law, and was admitted to the Suffolk Bar in 1891.

Joseph H. Woodford, a member of the Society since 1865, died at his summer home in Wenham, Massachusetts, July 16, 1904, at the age of 76 years.

Colonel Woodford, as he was familiarly called, was one of the most prominent and active members of the Society in recent years. A man of much executive force and ability, thoroughly qualified by practical experience, and interested in horticultural matters, he devoted much time in his later life to the furtherance of the work of the Society.

He was a member of the Committee of Arrangements for many years, the last twelve as chairman, and had served also at various times as chairman or member of the committees on plants, flowers, vegetables, and gardens.

In his earlier life he was connected with the East India trade, residing in India for several years, and afterward visited Central and South America, always interested in the floras of the countries he visited and bringing home specimens of living plants.

He presented papers before the Society in 1882 and 1885 on Herbaceous Plants and their Culture and on Heating Greenhouses, and in 1886 gave an account of A Trip to the Tropics, all of which were printed in the Transactions of the Society for those years.

Oliver J. Rand was born in Exeter, New Hampshire, April 3, 1820, and died in Cambridge, Massachusetts, July 28, 1904. He became a member of the Society in 1865.

Rev. Samuel Reynolds Hole, a corresponding member of the Society since 1875, died at Rochester, England, August 27, 1904, in his 85th year.

Dean Hole was born in Caunton, Nottinghamshire, England, December 5, 1819.

He was a devoted and skilful cultivator of the rose and his enthusiasm in its behalf did much to restore a somewhat declining

popular interest in this queen of flowers. He published in 1859 "A Book About Roses" which was so well received that it passed through many editions and was translated into many other languages. The opening sentence of this book expresses a sentiment which finds appreciative response in the hearts of all lovers of floriculture:

> "He who would have beautiful Roses in his garden
> must have beautiful Roses in his heart."

He wrote other books on horticultural subjects in addition to his book on roses, and was one of the founders of the National Rose Society.

NATHAN MATTHEWS, Senior, a member of the Society since 1863, died at Bar Harbor, Maine, August 29, 1904, in the 90th year of his age.

Mr. Matthews was born in Yarmouth, Massachusetts, September 15, 1814. He came to Boston at the age of 15 and engaged in mercantile pursuits, later becoming largely instrumental in the development of real estate interests in Boston and vicinity.

JAMES M. BARNARD, a life member of the Society since 1859, died at Milton, Massachusetts, September 10, 1904, at the age of 86 years.

PHILIP W. MOEN of Worcester, Massachusetts, died at his summer home in Shrewsbury, September 12, 1904, at the age of 47 years.

Mr. Moen was elected a member of the Society June 24, 1904.

Prominently identified with large business affairs he was interested also in agricultural and horticultural matters, and from his magnificent estate at Shrewsbury he sent frequent contributions of plants and flowers to the exhibitions of the Society.

HON. JOSEPH S. POTTER, formerly of Arlington, Massachusetts, died at his residence in Washington, D. C., September 13, 1904, at the age of 82 years. He was elected a member of the Society in 1865. Mr. Potter was a member of the Massachusetts Legislature for fifteen years, and afterward United States Consul to Germany, at Stuttgart.

Jacob Warren Manning died at his home in Reading, Massachusetts, September 16, 1904, at the age of 78 years.

He was a life member of the Society since 1858 and was one of the oldest and best-known horticulturists and nurserymen in the country.

He was born in Bedford, New Hampshire, February 20, 1826. Leaving the home farm at the age of 21 years he spent the next seven or eight years in farm and nursery work on various estates, and, in 1849, became superintendent of the Winnisimmet Nursery at Chelsea, Massachusetts, of which S. W. Cole, the author of The American Fruit Book, was proprietor.

In June, 1854, he settled in Reading and established the nursery business there which he continued uninterruptedly until his death, a period of fifty years. He was especially interested in evergreens and introduced into cultivation in the East many varieties of these, in addition to other ornamental trees and shrubs. He was a pioneer also in the introduction of many desirable fruits, and was among the first to propagate the Concord and Diana grapes.

He was active in the work of the Society, a regular attendant at its meetings, and a constant contributor to its exhibitions. By his death is taken away another of the few remaining veterans of fifty years' service in horticultural endeavor and the vacancy will be hard to fill.

Mr. Manning was a man of interesting personality, full of zeal in his life's work, and ever ready to impart to the inquirer the information sought. It is a source of congratulation that so much of his great store of horticultural knowledge is permanently preserved in the printed Transactions of the Society, for few were the discussions in past years to which he did not add material from his wide knowledge and practical experience.

Edward Kakas, a life member of the Society since 1866, died at his home in West Medford, Massachusetts, September 18, 1904, at the age of 76 years. He was born in Buda-Pesth, Hungary, in 1828. He learned the furrier's trade in his youth and, coming to America about the year 1851, established a fur business in Boston, becoming a leading merchant in that line of trade.

Edwin W. Gilmore was born in Easton, Massachusetts, October 9, 1828. He learned the machinist's business in Taunton, and in 1854 with the late Oakes and Oliver Ames formed the partnership of E. W. Gilmore & Co., of North Easton, and began the manufacture of various articles of hardware.

Mr. Gilmore was a practical and ingenious machinist, and from time to time invented and introduced important improvements in the way of machinery and labor-saving processes.

He was also much interested in horticulture, and in the year 1872 built the first greenhouse in the town of Easton. He became a life member of the Massachusetts Horticultural Society in 1885, and for a number of years was a frequent and successful exhibitor at its exhibitions, taking numerous medals, certificates of merit, and other premiums. He was especially interested in orchids and his collection of these plants was at one time among the finest in Massachusetts. In the culture of some of the more difficult species such as Odontoglossums, *Miltonia vexillaria*, and Masdevallias he was particularly successful. He had also a fine assortment of Cypripediums, Cattleyas, and other varieties. In addition to orchids he was a successful grower of azaleas, cinerarias, and other stove and greenhouse plants.

He had been accustomed to pass the winters in California in late years, and he secured a collection of oranges and lemons which he cultivated successfully in pots in one of his houses. He grew plants because he loved them, and much of his spare time for years was spent in working amongst them, giving him a pleasant relaxation from a busy life.

Mr. Gilmore died on his birthday, October 9, 1904, aged 76 years.

By Wm. N. Craig.

Arthur Hunnewell died at his home in Wellesley, Massachusetts, October 17, 1904. He became a life member of the Society in 1883.

Mr. Hunnewell was born in Boston, December 1, 1845, and was graduated from Harvard in the class of 1868. He was engaged in the banking business with his father, the late H. Hollis Hunnewell, until 1875, when he retired. He was for several years a

frequent and successful exhibitor at the chrysanthemum exhibitions of the Society.

Ogden Codman, a life member of the Society since 1866, died at South Lincoln, Massachusetts, October 25, 1904, at the age of 65 years.

Elisha Nye Pierce was born in West Medford, Massachusetts, August 21, 1839, and died at his home in Waltham, October 30, 1904, at the age of 65 years. He became a member of the Society in 1900.

Mr. Pierce was a prominent horticulturist, making a specialty in recent years of growing Easter lilies, carnations, and chrysanthemums for the Boston market. He was one of the most genial and companionable of men and a public-spirited citizen. He was a veteran of the Civil War and participated in the first battle of Bull Run where he was wounded.

Samuel A. Carlton, formerly of Somerville, Massachusetts died at his home in Boston, November 10, 1904. He was elected a member of the Society in 1865.

Mr. Carlton was born in Salem, Massachusetts, November 2, 1827. He was a man of large business and financial interests and a member of the firm of Byam & Carlton, the well-known manufacturers of friction matches.

James Gray of Needham, Massachusetts, died November 20, 1904. He was elected a member of the Society in 1860.

Professor Joseph Lancaster Budd, a corresponding member of the Society since 1887, died at Phœnix, Arizona, November 20, 1904. He was born at Peekskill, New York, July 5, 1835.

The scene of Professor Budd's life work was in the Western States where he did much for the interests of horticulture. He was active in the introduction of varieties of fruits suitable for the climate of that section of the country, and by his investigations greatly increased the possibilities of successful orcharding.

Sylvester Tower was born in Oxford County, Maine, April 14, 1833, and died in Boston, December 6, 1904. He was elected a member of the Society in 1901.

Mr. Tower began in 1853 the manufacture of ivory piano keys, building up an extensive and successful business.

ALFRED S. BROWN, a life member of the Society since 1864, died at Jamaica Plain, Massachusetts, December 15, 1904, at the age of 82 years. He was born in Pownal, Maine, January 1, 1822.

Mr. Brown was well known in the mercantile circles of Boston, and was engaged in the wholesale fruit business for a period of fifty years.

# OFFICERS, COMMITTEES, AND MEMBERS, 1904.

# Massachusetts Horticultural Society.

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*Communications to the Secretary, on the business of the Society, should be addressed to him at Horticultural Hall, Boston

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*Members and correspondents of the Society and all other persons who may know of deaths, changes of residence, or other circumstances showing that the following lists are inaccurate in any particular, will confer a favor by promptly communicating to the Secretary the needed corrections.*

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Leuchars, Robert B., Dorchester.
Libby, Charles W., Medford.
Lincoln, George, Hingham.
Lincoln, Col. Solomon, Boston.
Lindsey, N. Allen, Marblehead.
Little, James L., Brookline.
Little, John Mason, Swampscott.
Locke, Edwin F., West Medford.
Locke, Isaac H., Belmont.
Lockwood, Rhodes, Boston.
Lodge, Richard W., Boston.
Loftus, John P., Dorchester.
Loomis, Elihu G., Bedford.
Loring, Augustus P., Beverly.
Loring, Mrs. William Caleb, Beverly.
Lathrop, William S. H., Boston.
Low, George D., Boston.
Lowder, John, Watertown.
Lowell, Abbott Lawrence, Boston.
Lowell, Miss Amy, Brookline.
Lowell, James A., Chestnut Hill.
Lowell, John, Newton.
Lowell, Miss Lucy, Boston.
Luke, Otis H., Brookline.
Lumb, William, Boston.
Lunt, William W., Hingham.
Lyman, George H., Wareham.
Lyman, Mrs. Theodore, Brookline.

Mabbett, George, Plymouth.
McCarty, Timothy, Providence, R. I.
Mackie, George, M. D., Attleboro.
McWilliam, George, Whitinsville.
Mahoney, John, Boston.
Mallett, E. B., Jr., Freeport, Me.
Mann, James F., Ipswich.
Manning, J. Woodward, Reading.
Manning, Mrs. Lydia B., Reading.
Manning, Warren H., Brookline.
Marble, Benjamin C., Manchester.
Marshall, Frederick F., Everett.
Marston, Howard, Boston.

Mason, Miss Ellen F., Boston.
Mason, Col. Frederick, Taunton.
Mathison, Fred R., Waltham.
Matthews, Nathan, Jr., Boston.
Melvin, George, South Framingham.
Melvin, James C., West Newton.
Merriam, Charles, Boston.
Merriam, Herbert, Weston.
Metivier, James, Cambridge.
Milmore, Mrs. Joseph, Washington, D. C.
Minot, Charles S., Milton.
Mitton, Edward J., Brookline.
Mixter, George, Boston.
Monteith, David, Dedham.
Montgomery, Alexander, Natick.
Montgomery, Alexander, Jr., Natick.
Moore, George D., Arlington.
Moore, John H., Concord.
Morgan, George H., New York, N. Y.
Morse, John T., Jr., Boston.
Morse, Robert M., Jamaica Plain.
Morton, James H., Mattapan.
Moseley, Charles H., Roxbury.
Motley, E. Preble, Boston.
Mudge, George A., Portsmouth, N. H.
Murdock, Albert L., Boston.
Murray, Peter, Fairhaven.
Mutch, John, Newtonville.

Nevins, Mrs. David, Methuen.
Newman, John R., Winchester.
Newton, Rev. William W., Pittsfield.
Nickerson, Mrs. George A., Dedham.
Norton, Charles W., Allston.
Norton, Edward E., Boston.

Oakman, Hiram A., North Marshfield.
Olmstead, Frederick Law, Jr., Brookline.
Olmstead, John C., Brookline.
Orpet, Edward O., South Lancaster.

Page, Mrs. Henrietta, Boston.
Paige, Clifton H., Mattapan.
Parker, Charles W., Boston.
Parkman, Henry, Boston.
Parsons, John E., Lenox.
Patten, Marcellus A., Tewksbury.
Paul, Alfred W., Dighton.
Peabody, Francis H., Boston.
Peabody, George A., Danvers.
Peabody, John E., Salem.
Peabody, S. Endicott, Salem.
Peck, William G., Arlington.
Perry, Oliver Hazard, Lowell.
Pierce, Miss Marion W., Topsfield.
Perry, George W., Malden.
Pfaff, Col. Charles, South Framingham.
Phillips, John C., North Beverly.
Phillips, Mrs. John C., North Beverly.
Phillips, William, North Beverly.
Pickman, Dudley L., Boston.
Pickman, Mrs. Ellen R., Boston.
Pierce, Dean, Brookline.
Pierce, George Francis, Neponset.
Pond, Preston, Winchester.
Pope, Col. Albert A., Cohasset.
Porter, Alexander S., Boston.
Porter, James C., Wollaston.
Prang, Louis, Boston.
Pratt, Laban, Dorchester.
Pratt, Lucius G., West Newton.
Pratt, Robert M., Boston.
Prendergast, J. M., Boston.
Prescott, Eben C., New York, N. Y.

Presson, Alfred, Gloucester.
Preston, Howard Willis, Providence, R. I.
Pringle, Cyrus G., Charlotte, Vt.
Proctor, T. E., Boston.
Putnam, George, Manchester.
Putnam, George J., Brookline.
Putnam, Joshua H., Newton Centre.

Quinby, Hosea M., M. D., Worcester.

Raddin, Everett W., North Cambridge.
Rand, Harry S., North Cambridge.
Rawson, Herbert W., Arlington.
Rawson, Warren W., Arlington.
Ray, James F., Franklin.
Raymond, Walter, Boston.
Read, Charles A., Manchester.
Reardon, Edmund, Cambridgeport.
Reardon, John B., Boston.
Reed, Henry R., Jamaica Plain.
Rice, George C., Worcester.
Rich, William P., Chelsea.
Richards, John J., Brookline.
Richardson, Charles E., Brookline.
Richardson, Dr. William L., Boston.
Rinn, J. Ph., Boston.
Ripley, Charles, Dorchester.
Ripley, Ebed L., Hingham Centre.
Robb, Russell, Concord.
Robinson, John, Salem.
Robinson, Joseph B., Dorchester.
Rodman, Miss Mary, Concord.
Roffe, Albert H., Newton Centre.
Rogers, H. H., Fairhaven.
Rogers, Mrs. Jacob C., Peabody.
Roland, Thomas, Nahant.
Rothwell, James E., Brookline.
Roy, David Frank, Malden.
Ruddick, William H., M. D., South Boston.
Russell, George, Woburn.
Russell, James S., Milton.
Russell, Walter, Arlington.

Salisbury, William C. G., Brookline.
Saltonstall, Richard M., Chestnut Hill.
Sanford, Oliver S., Roxbury.
Sanger, Mrs. George P., Boston.
Sargent, Andrew Robeson, Brookline.
Sargent, Charles S., Brookline.
Sargent, Mrs. Charles S., Brookline.
Sargent, Charles Sprague, Jr., Brookline.
Sargent, Mrs. Francis W., Wellesley.
Sawtelle, Eli A., Amherst, N. H.
Sawyer, Timothy T., Boston.
Scorgie, James C., Cambridge.
Scott, Charles, Newton.
Sears, Miss Clara E., Boston.
Sears, Miss Emily E., Boston.
Sears, Dr. Henry F., Boston.
Sears, J. Montgomery, Boston.
Sears, Mrs. J. Montgomery, Boston.
Shaler, Nathaniel S., Cambridge.
Sharp, Miss Helen, Boston.
Shaw, Christopher C., Milford, N. H.
Shaw, Francis, Wayland.
Shaw, Mrs. Robert G., Wellesley.
Shorey, John L., Lynn.
Shuman, Hon. A., Roxbury.
Shurtleff, Josiah B., Jr., Revere.
Sias, Charles D., Wenham.
Siebrecht, H. A., New Rochelle, N. Y.

Simpkins, Miss Mabel, Yarmouth.
Skinner, Francis, Boston.
Skinner, Francis, Jr., Dedham.
Sleeper, Henry Davis, Boston.
Smiley, Daniel, Lake Mohonk, N. Y.
Smith, Archibald, West Somerville.
Smith, Calvin W., Wellesley Hills.
Smith, Charles H., Newton Highlands.
Smith, Charles S., Lincoln.
Smith, Edward N., San Francisco, Cal.
Smith, Thomas Page, Waltham.
Snow, Eugene A., Melrose.
Sohier, Col. William D., Beverly.
Souther, Charles H., Jamaica Plain.
Spaulding, Edward, West Newton.
Spooner, William H., Jamaica Plain.
Sprague, Isaac, Wellesley Hills.
Springall, George, Malden.
Stearns, Charles H., Brookline.
Stearns, Frank W., Newton.
Stedman, Henry R., M. D., Roslindale.
Stevens, Hon. Moses T., Andover.
Stewart, William J., Winchester.
Stone, Charles A., Newton.
Stone, Charles W., Boston.
Stone, Prof. George E., Amherst.
Stone, George F., Chestnut Hill.
Strong, William C., Waban.
Sturgis, Richard Clipston, Boston.
Swain, Charles E., Roxbury.
Sweet, Everell F., Malden.
Sylvester, Edmund Q., Hanover.

Taylor, Charles H., Boston.
Taylor, Horace B., Portland, Me.
Temple, Felker L., Boston.
Tenney, C. H., Methuen.
Thatcher, William, Brookline.
Thayer, Mrs. Alice R., Boston.
Thayer, Bayard, South Lancaster.
Thayer, Mrs. Bayard, South Lancaster.
Thayer, Eugene V. R., South Lancaster.
Thayer, Mrs. Eugene V. R., South Lancaster.
Thayer, Henry J., Boston.
Thayer, John E., South Lancaster.
Thayer, Mrs. John E., South Lancaster.
Thayer, Nathaniel, Lancaster.
Thayer, Mrs. Nathaniel, Lancaster.
Thayer, S. V. R., Boston.
Thiemann, Hermann, Owasso, Mich.
Thomas, W. B., Manchester.
Thurlow, Thomas C., West Newbury.
Tilton, Stephen W., Allston.
Tolman, Benjamin, Concord.
Tolman, Miss Harriet S., Boston.
Toppan, Roland W., Malden.
Torrey, Elbridge, Dorchester.
Torrey, Everett, Charlestown.
Tower, Miss Ellen May, Lexington.
Tower, Mrs. Helen M., Cambridge.
Travis, Charles B., Brighton.
Trepess, Samuel J., Glencove, L. I., N. Y.
Tucker, Lawrence, Boston.

Underwood, Loring, Belmont.

Vander-Woerd, Charles, Waltham.
Vaughan, William Warren, Boston.
Vinal, Miss Mary L., Somerville.
Vining, R. William E., Hingham.

Wakefield, E. H., Cambridge.
Walcott, Henry P., M. D., Cambridge.
Waldo, C. Sidney, Jamaica Plain.
Wales, George O., Braintree.
Walsh, Michael H., Woods Hole.
Waltham, George C., Dorchester.
Walton, Daniel G., Wakefield.
Warburton, Chatterton, Fall River.
Ward, Francis Jackson, Roxbury.
Ward, John, Newton Centre.
Ware, Benjamin P., Clifton.
Ware, Miss Mary L., Boston.
Warren, Samuel D., Dedham.
Washburn, Andrew, Hyde Park.
Watson, Benjamin M., Jamaica Plain.
Watson, Thomas A., East Braintree.
Watts, Isaac, Waverley.
Webster, Hollis, Cambridge.
Welch, David, Dorchester.
Welch, Edward J., Dorchester.
Weld, Christopher Minot, Readville.
Weld, George W., Boston.
Weld, Richard H., Boston.
Weld, Gen. Stephen M., Dedham.
West, Mrs. Maria L., Neponset.
Wheeler, Frank, Concord.
Wheeler, James, Brookline.
Wheeler, Wilfrid, Concord.
Wheelwright, A. C., Brookline.
Wheelwright, Edmund M., Boston.
Whitcomb, William B., Medford.
White, Mrs. Charles T., Boston.
White, Francis A., Brookline.
White, George R., Boston.
White, Joseph H., Brookline.
Whitney, Arthur E., Winchester.
Whitney, Ellerton P., Milton.
Whitney, Henry M., Cohasset.
Whittier, George E., Groton.
Whittier, William Benjamin, South Framingham.
Wigglesworth, George, Milton.
Wilbur, George B., Woods Hole.
Wilder, Edward Baker, Dorchester.
Wilder, Henry A., Malden.
Willard, E. W., Newport, R. I.
Willcutt, Levi L., Brookline.
Williams, Miss Adelia Coffin, Roxbury.
Williams, Benjamin B., Boston.
Williams, Henry Bigelow, Boston.
Williams, John Davis, Boston.
Williams, Philander, Taunton
Wilson, Col. Henry W., Boston.
Wilson, William Power, Boston.
Winthrop, Robert C., Jr., Boston.
Wood, William K., West Newton.
Wright, George C., West Acton.
Wright, John G., Brookline.
Wyman, Oliver B., Shrewsbury.
Wyman, Windsor H., North Abington.

## ANNUAL MEMBERS.

Alles, William H., Chestnut Hill.
Anderson, George M., Milton
Atkinson, Miss Caroline P., Brookline.
Atkinson, Edward, Brookline.
Ayres, Miss Helen F., Medford.

Bangs, Francis R., Boston.
Barker, John G., South Bend, Ind.
Barr, John, Wellesley.
Bayley, S. King, Westwood.
Bigelow, Arthur J., Eastlake, Worcester.
Bigelow, Mrs. Nancy J., Southborough.
Bird, John L., Dorchester.
Blackmur, Paul R., Quincy.
Blomberg, Carl, North Easton.
Borst, Theodore F., Brookline.
Boyden, Clarence F., Taunton.
Bradley, Miss Abby A., Hingham.
Breck, Charles H., Newton.
Breed, Edward W., Clinton.
Bullard, John C., Cambridge.

Carpenter, Frank O., West Roxbury.
Chandler, Alfred D., Brookline.
Chase, Joseph S., Malden.
Child, Stephen, Auburndale.
Chubbuck, Isaac Y., Roxbury.
Clapp, Henry L., Roxbury.
Clark, Arthur, East Weymouth.
Clark, John W., North Hadley.
Clark, Joseph, Manchester.
Clark, Theodore M., Newtonville.
Clinkaberry, Henry T., Trenton, N. J.
Collins, Frank S., Malden.
Cotter, Lawrence, Danville, Pa.
Crosby, J. Allen, Jamaica Plain.
Curtis, Joseph H., Boston.
Curtis, Louville, Tyngsborough.

Davis, Frederick S., West Roxbury.
Derby, William H., Revere.
Dolbear, Mrs. Alice J., College Hill.
Dorr, George B., Boston.
Doyle, William E., Cambridge.
Duffley, Daniel, Brookline.
Duncan, John W., West Roxbury.

Eastman, Edmund C., Brookline.
Eustis, William Tracy, Brookline.
Evans, Frank H., Malden.
Ewell, Marshall F., Marshfield Hills.

Farlow, Mrs. William G., Cambridge.
Fenno, Warren, Revere.
Finlayson, Duncan, Jamaica Plain.
Fisher, Sewell, Boston.
Fiske, Harry E., Wollaston.
Fitzgerald, Desmond, Brookline.
Forbes, William H., Jamaica Plain.

Francis, George E., M. D., Worcester.
Freeman, Miss Harriet E., Boston.
Fuller, T. Otis, Needham.

Gardner, John Hays, Cambridge.
Garthley, James, Fairhaven.
Gill, Mrs. E. M., Medford.
Grew, Henry Sturgis, Boston.
Grey, Robert Melrose, Belmont, Cuba.
Grey, Thomas J., Chelsea.

Hall, Stacy, Boston.
Hallstram, Charles W., West Somerville.
Ham, Fernald E., Burlington.
Harrison, C. S., York, Nebraska.
Hartwell, Samuel, Lincoln.
Hatfield, T. D., Wellesley.
Hawes, Cyrus Alger, Brookline.
Herff, B. van, New York, N. Y.
Heustis, Warren H., Belmont.
Hildreth, Miss Ella F., Lowell.
Hill, Arthur Dehon, Boston.
Hill, J. Willard, Belmont.
Hollis, George, South Weymouth.
Houghton, George S., West Newton.
Hovey, Charles L., Waban.
Howden, Thomas, Whitinsville.
Hubbard, Allen, Newton Centre.
Hubbard, F. Tracy, Cambridge.
Huston, Miss Katharine W., Jamaica Plain.

Illenberger, Henry, Lake Geneva, Wisconsin.

James, Robert Kent, Newton Centre.
Jameson, G. W., East Lexington.
Johnston, Robert, Lexington.

Keith, Mrs. Mary R., Washington, D. C.
Kelsey, Harlan P., Boston.
Kemp, William S., Brookline.
Kennard, Frederic H., Brookline.
Kimball, Richard D., Waban.
Knott, N. W. T., Waban.

Lancaster, Mrs. E. M., Roxbury.
Laurie, Robert, Newport, R. I.
Lawson, Joshua, Brookline.
Leuthy, A., Roslindale.
Lewis, E. L., Taunton.
Lincoln, Miss Agnes W., Medford.
Lomax, George H., Somerville.
Loring, Mrs. Thacher, Brookline.
Loring, William C., Beverly.
Lothrop, Thornton K., Boston.
Low, Hon. Aaron, Hingham.
Lumsden, David, Roslindale.

McLaren, Anthony, Westwood.
MacMulkin, Edward, Boston.
Manda, W. A., South Orange, N. J.
Manning, A. Chandler, Reading.
Martin, William J., Milton.
Meriam, Horatio C., D. M. D., Salem.
Metcalf, Dr. Ben H., Winthrop.
Milman, William, Roxbury.
Moody, Abner J., Lexington.
Morgan, George M., Boston.
Morrison, William, Cohasset.
Moseley, Frederick C., Dorchester.
Moseley, Frederick Strong, Newburyport.
Munson, Prof. W. M., Orono, Me.

Newton, John F., Roxbury.
Nicholson, William, Framingham.
Nicol, James, Quincy.
Nixon, J. Arthur, Taunton.
Norton, Michael H., Boston.
Norton, Patrick, Dorchester.

Oakes, F. L., Newton.

Parker, John, Newtonville.
Parker, Walter S., Reading.
Pettigrew, John A., Jamaica Plain.
Pierce, Mrs. F. A., Brookline.
Pray, James Sturgis, Cambridge.
Pritchard, John, Madbury, N. H.
Purdie, George A., Ormond, Florida.

Rea, Charles H., Norwood.
Rea, Frederic J., Norwood.
Rich, Miss Ruth G., Dorchester.
Rich, William E. C., Roxbury.
Richards, Mrs. P. D., West Medford.
Robb, Peter B., Whitinsville.
Robinson, Walter A., Arlington.
Ross, Charles W., Newtonville.
Ross, Henry Wilson, Newtonville.
Ross, Walter D., Worcester.

Sander, Charles, Brookline.
Saunders, Miss Mary T., Salem.
Scott, Augustus E., Lexington.
Scudder, Samuel H., Cambridge.
Searles, E. F., Methuen.
Seaver, Edwin P., Waban.
Sedgwick, Mrs. Ellery, New York, N. Y.
Sharkey, John F., Cambridge.
Sharples, Stephen P., Cambridge.
Shaw, Hon. Edward P., Newburyport.
Shea, James B., Jamaica Plain.
Stevens, Mrs. Mary L., Brookline.
Stone, Joshua C., Watertown.
Strange, David T., Stoneham.
Sullivan, Michael, Revere.
Sutherland, George A., Roslindale.
Swan, Charles W., M. D., Brookline.
Symmes, Samuel S., Winchester.

Tailby, Joseph, Wellesley.
Teele, William H., West Acton.
Thorpe, Joseph, Taunton.
Tyler, Mrs. John F., North Andover.
Tyndale, Theodore H., Weymouth.

Vaughan, J. C., Chicago, Ill.

Ware, Horace E., Milton.
Warren, Samuel H., Weston.
Waugh, Prof. F. A., Amherst.
Welch, Patrick, Dorchester.
Westwood, Thomas H., Jamaica Plain.
Wheeler, Ezra H., Dorchester.
Wheeler, Henry A., Newtonville.
Wheelwright, George William, Jamaica Plain.
Wilde, Mrs. Albion D., West Roxbury.
Wilder, Miss Grace S., Dorchester.
Wilder, Miss Jemima R., Dorchester.
Wilkie, Edward A., Newtonville.
Winter, William C., Mansfield.
Wood, Mrs. Anna D., West Newton.
Wood, Elijah A., West Newton.
Wood, E. W., West Newton.

Young, E. Bentley, Boston.

Zirngiebel, Denys, Needham.